

The Role of Financial Literacy in Financial Inclusion in Emerging Markets: Evidence from South Africa

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By
Tayina Kamanga
KMNTAY001

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Supervisor: Professor Nicholas Biekpe

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ABSTRACT

Despite all the efforts and initiatives put in place by governments and development finance institutions to improve financial inclusion, two billion people in the world remain unbanked. The majority of the unbanked population is in the developing countries and mostly in the Sub-Saharan region. This is of huge concern to many governments and their international development partners because it hinders inclusive economic growth. It is argued that consumers can only use products and /or services if they have enough knowledge about these. According to the 2014 World Bank Global Findex database, only 33% of the adults worldwide are financially literate and this average even goes down to 13% in developing countries. It is, therefore, imperative to improve financial literacy of the consumers to increase meaningful participation in the financial sector especially in developing countries. As such it is necessary to understand the relationship between financial literacy and financial inclusion within the Sub-Saharan region. Most of the previous researches in the area of study have been conducted in developed countries and most of them have focused on either the relationship between financial literacy and the demographic factors, or the relationship between financial inclusion and demographic factors. Very few studies have investigated the direct link between financial literacy aspects and financial inclusion indicators. This study accordingly investigates the link between financial literacy and financial inclusion. The study also investigates how socio-demographic and economic characteristics affect financial literacy levels of individuals. Due to the availability of reliable data in South Africa the study uses evidence from South Africa using data collected by the Human Sciences Research Council (HSRC). The main results of the study indicate that use /ownership of financial products is positively and significantly related to financial literacy. The results also indicate that geographical location, age and education attainment have an influence on an individual being financially literate and financially included, but there is no evidence to suggest that living standard measure has an impact on either financial literacy or financial inclusion. The implications of the results of this study are important because they highlight the focus areas for policy makers to achieve optimal results in financial literacy and financial inclusion. In addition, the study adds to the body of knowledge an analysis of a direct link between financial literacy and financial inclusion in an emerging market using widely accepted indicators and a more diverse and nationally representative sample. The study concludes that increasing financial literacy levels would increase the uptake of financial products/services. Based on the results of the study, this research presents conclusions, policy recommendations and recommendations for further research studies that are necessary to improve aspects of financial literacy and financial inclusion.

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GLOSSARY OF TERMS

Financial Inclusion	Proportion of individuals and firms that use formal financial products and services. (WBG)
Financial Literacy	A combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and, finally, achieve individual well-being and financial independence. (OECD & BASA)
Financial Product	Instruments that help an individual to save, invest, get insurance and get a mortgage. (Economy Watch, n.d.)
Financial Services	Economic services provided by the finance industry encompassing a broad range of businesses that manage money. (Wikipedia, n.d.)

LIST OF ACRONYMS AND ABBREVIATIONS

AFI	Alliance for Financial Inclusion
BANKSETA	Banking Sector Education and Training Authority
BASA	Banking Association South Africa
BCG	Boston Consulting Group
FSB	Financial Services Board
FSC	Financial Services Charter
FSSA	Financial Systems Stability Assessments
IMF	International Monetary Fund
INFE	International Network on Financial Education
GDP	Gross Domestic Product
GLM	Generalised Linear Model
GPFI	Global Partnership for Financial Inclusion
HSRC	Human Sciences Research Council
OECD	Organisation for Economic Cooperation and Development
UFA	Universal Financial Access
UN	United Nations
UNSGSA	United Nations Secretary General's Special Advocate
WBG	World Bank Group
SADC	Southern African Development Community
SAS	Statistical Analysis System
SASAS	South African Social Attitudes Survey
SASSA	South African Social Security Agency
SEDA	Sustainable Economic Development Assessment
SME	Small Medium Enterprises

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CHAPTER ONE - INTRODUCTION

1.1 Research Area

Financial inclusion, which in simple terms is defined as the use of formal financial services/products (Allen, Demirgüç-Kunt, Klapper, & Martinez Peria, 2016), has been recognised by governments, multi-lateral agencies and development finance institutions as one of the key tools to end poverty and enhance economic development. In 2010 at the G20 summit in Seoul, financial inclusion was recognised as one of the main pillars of the global development agenda (Global Partnership for Financial Inclusion [GPFI], 2012). Similarly, In 2011 at the Global Policy Forum at Riveria Maya, Mexico, one hundred financial regulatory and policy-making institutions from over 90 developed and emerging countries including 16 central banks from Sub-Saharan Africa (Kasekende, 2014) signed to a commitment to unlock the economic and social potential of the two billion unbanked population through financial inclusion called the Maya Declaration (Alliance for Financial Inclusion [AFI], 2017). Most studies have shown evidence that financial inclusion can go beyond improving the livelihoods of the poor people at a household level to reducing income inequality, increasing employment rates, improving financial sector development, enhancing financial stability and, eventually, leading to inclusive economic development.

In brief, having access to financial products and services allows an individual to meet daily needs, to save, borrow, create wealth and insure against potential losses. It is also important for the macroeconomic stability of economies (Goldberg & Niazi, 2016). Access to financial services is, therefore, imperative for the achievement of inclusive economic growth for the eradication of poverty among the livelihoods of the poor. It is for this reason that many countries are working towards increasing poor peoples' accessibility to better financial products and services through financial inclusion initiatives. Nevertheless, increased access and better choices do not automatically translate into effective choice. Other studies argue that increasing access to financial services/ products would compromise the standards in the financial sector resulting in negative effects on financial stability and would increase poverty levels among the poor. Nevertheless, they do acknowledge that this is a result of not properly matching the consumers' needs and abilities to use and effectively manage the services/products provided to them. This suggests that building the capacity of the consumers should lead to effective choice and use of the services/products. The studies of Demirgüç-Kunt and Klapper (2012) and of Diniz, Birochi, and Pozzebon (2012) as well as Chibba (2009) contend that enhancing financial literacy, which is simply an understanding of financial concepts and ability to use the knowledge to make informed financial decisions, is both a crucial and a responsible way of enhancing

effective choice and use of financial products/services because it equips the consumers with the necessary skills and knowledge required to make informed decisions.

Zins and Weill (2016) find that financial inclusion levels are very low in Africa as compared to other regions with the exception of upper middle-income countries. In line with similar results are the findings of Ardic, Heimann, and Mylenko (2011) that most of the unbanked population amounting to 64%, is in the developing countries. It has also been noted that the concept of financial literacy is also less understood in the Sub-Saharan region and these countries are underrepresented in this research area (Benjamin Roberts, Struwig, & Gordon, 2014). It is crucial to understand the relationship between key driving factors and enabling tools to unlock the potential of enhancing the use of financial products and services within the region. Thus the preference for country in which to undertake a study in this area is an emerging market within the region. The choice of an emerging market is based on a number of reasons including: it has the characteristics of both the developed and developing countries (Requejo, 2011) and they are transitional economies as they are believed to have embarked on economic development reform programmes including financial sector development through financial inclusion (Investopedia, n.d.). For example, in August 2014 India launched the Prime Minister's Public Wealth Programme that managed to open 15 million accounts in a single day (Jha, Amerasinghe, & Calverley, 2014) and by January 2016, the programme had managed to bring 200 million families into the financial system. Another example is South Africa where in 2004, the Financial Services Charter (FSC) was introduced to enhance citizens' participation in the financial market, and as a result, financial inclusion improved from 55% in 2005 to 85% in 2016. However, both these initiatives have not resulted in improvements in peoples' lives nor in economic benefits for their small businesses, and the challenge remains that of getting the consumers to use the accounts effectively, which provides an interesting development from where lessons can be drawn to improve the structure of future programmes. In addition financial sectors in emerging markets are more developed than the other developing countries, yet they are also denominated by banks rather than equity markets (Bonin, Hasan, & Wachtel, 2013), which shows that the developing countries also have a potential to develop their financial sectors. Despite all the progress made, emerging markets still lag behind the developed countries in terms of use of financial products and services. This provides an interesting and ideal environment to conduct a research in the field of financial inclusion for policy-makers in the region.

South Africa, being the second largest economy in Africa within the Sub-Saharan region with a financial system that shares the characteristics of an emerging market (Refera, Dhaliwal, & Kaur, 2016), is therefore the best country for this study. According to the World Bank Group (WBG), South Africa

accounts for 35% of Africa's Gross Domestic Product (GDP) and it is considered to be an upper middle-income economy. Although South Africa has seen a tremendous improvement in terms of financial inclusion, millions of people in South Africa are still excluded from the economy due to various kinds of discrimination (The Department of National Treasury, 2017). As mentioned above, financial inclusion initiatives have not resulted in meaningful participation in the financial sector. Evidence of this is provided by several studies, including the studies of Rootman and Antoni (2014) that indicate that South Africa has low levels of domestic savings and high indebtedness.¹ According to Roberts, Struwig, Gordon, Viljoen, and Wentzel (2012) and of Fatoki and Oni (2014), South Africa still remains with a substantial proportion of the population with low levels of financial knowledge. This could be the possible reason for less meaningful participation in the financial market. Roberts et al. (2012) also note that increased diversification of financial products in the market has complicated the financial decision-making process for the ordinary citizens, thereby making meaningful participation in the formal financial sector totally impossible.

Due to this drawback, a number of studies have been carried out to measure financial literacy levels and identify the determinants of financial literacy so as to determine effective financial education strategies. This has increased and enriched the database on financial literacy and has made South Africa an exception among other countries in the region that are underrepresented in terms of data in the area of study as well as in terms of account penetration rate. However, very few studies have been done to assess the direct link between financial literacy and financial inclusion in many developing countries including South Africa where financial inclusion initiatives are needed most. A study to establish the relationship between financial inclusion and financial literacy in South Africa will therefore be appropriate for policy-makers to design appropriate tools to enhance meaningful participation in the financial sector within South Africa and the entire the region.

1.2 Problem Statement

The problem areas that this study seeks to address are summarised as follows:

- The unbanked population remains high and is of huge concern to development progress in developing countries.
- There is increased account penetration with less meaningful participation in South Africa.
- There are limitations in previous studies in the area of study.

¹ According to the Department of National Treasury, 2017 Budget Review as of September 2016 the ratio of household debt to disposable income was at 74%.

A. The Developing Countries Case

Financial inclusion efforts are aimed at ensuring that businesses and households have access to appropriate financial services and are able to make effective choices and also able to use them effectively. The world's poor, who are mostly in developing countries, rely on informal means such as family and friends and moneylenders to save, borrow and insure their assets. These tools are not only inadequate but also risky, expensive and unpredictable, thereby hindering the poor from starting and growing their businesses; building working capital; underwriting business risks and, ultimately, improving their overall welfare. Financial inclusion remains a considerable challenge for developing countries. According to 2016 Fintech Research, two billion people in the world mainly from the Sub-Saharan region remain unbanked. Demirgüç-Kunt, Klapper and Singer (2013) contend that despite all the effort to increase access to formal financial services, financial inclusion still remains low in the region. As a result of the increasingly positive link between financial inclusion and development (United Nations Secretary-General's Special Advocate [UNSGSA], 2016), the low rate of use of formal financial products/services in the region requires an investigation to find out what tools can enhance not just participation but meaningful participation in the financial sector.

B. The South African Case

In 2004, the FSC was introduced to enhance citizens' participation in the financial market. Since the introduction of the Financial Services Charter, financial inclusion improved from 55% in 2005 to 85% in 2016, which means that most of the adults have access to the formal finance sector. However, the treasury department finds that this initiative has not resulted in improvements in peoples' lives or into economic benefits for their small businesses. According to the Sustainable Economic Development Assessment (SEDA) conducted by the Boston Consulting Group (BCG), South Africa ranked poorly in its ability to convert wealth into well-being where one way to improving well being is through ownership and usage of financial products/services (Kessler et al., 2017). In addition to the problem that there is less meaningful participation, there is still a considerable percentage of people using informal products/services. The Banking Association South Africa (BASA) estimates that on average R12 billion is kept under mattresses every year in South Africa (The Banking Association South Africa, n.d.) This, however, could be only a small percentage of the total money circulating in the informal financial circles. The studies of Brey, Chisadza, Ludin, and Stern (2016) and of Kiarie (2015) as well as Makina, Fanta, Mutsonziwa, and Khumalo (2015) suggest that the widespread financial illiteracy is the reason why many people are still not participating or not making meaningful participation in the financial sector in South Africa . According to Roberts et al. (2012), South African consumers do not quite understand some financial products available on the market as well as some basic financial concepts. This is

evidenced by the poor savings culture and high indebtedness among South African consumers. The studies of Brink and of Schussler (as cited in Rousseau & Venter, 2016) and the studies of Rootman et al. (2014) attribute this behaviour to lack of financial literacy.

Rootman et al., 2014; Fatoki and Oni (2014); Mishi, Vacu, and Chipote (2012); Fanta, Mutsonziwo, and Naidoo, (2016); conclude that financial literacy has a significant effect on the use of financial services in South Africa. On the other hand, the studies of Wachira and Kihui (2012) also find that financial literacy is insignificantly related to financial inclusion. In view of these contradicting findings there is need for more research to draw concluding results that can be used for policy direction in the country and other developing countries. Regardless of the contradicting results from previous studies, the paragraph below shows why further research in the area of study is still necessary by highlighting the limitations in the previous studies.

C. Limitations of The Previous Research Studies

In his review of recent literature on financial literacy in South Africa, Fatoki et al. (2014) find that researchers in this area of study have used different measuring instruments/variables for the same research objective leading to different conclusions, and thus there is need for further research to improve the understanding of financial literacy. In addition, most of these studies have focused on the relationship between financial inclusion and socio-demographic/economic factors or the relationship between financial literacy and socio-demographic/economic factors. There are very few studies that have looked at the direct link between financial inclusion and financial literacy. Even some of those studies that have investigated the relationship between financial inclusion and financial literacy, used in their models some variables that would be considered subjective and/or not reflective of the subject matter. For example, Mishi et al. (2012) uses the ability to understand English as one of the financial inclusion variables yet this is not included as a financial inclusion indicator according to the internationally and widely accepted indicators by the GPFi or WBG. Other studies such as Rootman et al. (2014) were limited by not considering the effect of individual characteristics on their results. Other limitations affecting these studies include the geographical coverage, timeframe (how many years have passed since the study was conducted), and sampling techniques and sample sizes used. The study of Rootman et al. (2014) was limited to 335 black consumers in Nelson Mandela Bay and used convenience and snowball-sampling techniques, which exposed the results to the risk of sampling bias. The studies of Rousseau et al. (2015) and Mishi et al. (2012) were focused in Port Elizabeth and Eastern Cape Province respectively. Almost all these studies recommended the need for further studies to include a more geographically diverse sample and the use of generally and highly accepted measuring tools to produce more conclusive results.

The problems discussed above suggest the need for further research in the area of financial literacy and financial inclusion. A proper understanding of the relationships between financial literacy dimensions and financial inclusion indicators is required. This will assist the practitioners in the design and implementation of effective and impactful financial education programmes and policy interventions to make the consumers financially literate and to make better financial decisions and, ultimately, to improve their livelihoods. This study will use the nation-wide results of the South African Social Attitudes Survey (SASAS) on financial literacy focusing on the four measures of financial literacy (awareness, attitudes, knowledge and behaviour) as defined by the Organisation for Economic Cooperation and Development (OECD)/International Network on Financial Education (INFE) and The Banking Association South Africa (BASA), and four of the key indicators of formal use of financial services/products (owning an account, making formal savings, taking formal credit and owning an insurance product) as described by the GPMI and the WBG. The approach adopted by SASAS-HSRC is in line with the OECD/INFE guidelines methodology. Atkinson and Messy (2011) assert that the OECD/INFE methodology is regarded as an internationally renowned approach for its well researched criteria and thoroughly tested instruments thus the results are comparable at a cross-national level and over time. To this end, this study seeks to examine the effects of the financial literacy dimensions on financial product or service ownership/usage in South Africa.

1.3 Purpose and Significance of the Research

Most studies on financial literacy have been undertaken in the developed world, yet financial literacy is of particular importance to emerging and developing economies as they plan to improve the financial well being of their citizens (Agarwalla, Barua, Jacob, & Varma, 2013). According to the G20 Information Centre and FinMark Trust, a financially literate and financially capable citizenry is a necessary tool to create an enabling policy and regulatory environment for innovative financial inclusion and would lead to sustainable financial inclusion. This would get the balance right on the demand and supply factors of financial inclusion matters and that is why recently governments in addition to creating opportunities to increase availability of financial products and services are also more focused towards increasing the ability of the consumers to choose and use those products and services effectively. It is essential to understand the factors that affect individuals in decisions about their finances, and use of financial products and services based on studies of the relationship between financial literacy and financial inclusion using widely and internationally recognised measures and indicators of financial literacy and financial inclusion so as to help policy- makers to allocate resources aptly. The study will also contribute to the current body of knowledge in the area of study and will create a better

understanding of how financial literacy affects financial inclusion and what affects financial literacy penetration.

1.4 Research Questions and Scope

Primary Question

Does financial literacy affect the use/ownership of financial products and services?

Secondary Questions

1. What is the relationship between financial literacy and use/ownership of financial products and services?

In order to enhance an analysis aimed at understanding the impact of financial literacy on financial inclusion, a further question on factors that influence financial literacy levels of individuals has been included. Thus a secondary question appears below.

2. What are the prominent factors that affect financial literacy dimensions in South Africa?

Research Objectives

The objective of this study is to verify and understand the relationship between financial literacy dimensions and financial inclusion in emerging markets with evidence from South Africa. Therefore, this study seeks to achieve the following:

1. to establish the relationship between financial literacy dimensions and use/ownership of financial products and services, and in addition:
2. to establish the prominent factors that affect financial literacy dimensions.

1.5 Research Assumptions

To make the analysis complete and meaningful, firstly, the study will look at the prominent determinants of financial literacy in South Africa and the null hypothesis is:

H₀: Financial literacy is not affected by socio-demographic and economic factors in South Africa

This will be tested against the alternative hypothesis:

H₁: Socio-demographic and economic factors such as age, income (living standard measure), education, and geographical location have a significant effect on financial literacy dimensions.

The main focus of this study is on this second hypothesis:

H₀: There is no relationship between financial literacy and use/ownership of financial products and services in South Africa.

This will be tested against the alternative hypothesis:

H₂: Financial literacy is positively related to the use/ownership of financial products and services in South Africa.

1.6 Summary and Conclusions

This chapter of introduction defines the background of the research area of financial inclusion and financial literacy. The chapter has identified the problem that the study seeks to investigate and also the gaps in previous research studies that this research seeks to improve on. The significance of this study and its value addition to the current body of knowledge in the area of study has also been described in section 1.3. This chapter has also outlined the assumptions that will be tested to answer the research questions and achieve the objectives of the study.

The rest of the report of the research study is organised as follows: Chapter 2 presents the literature review on theoretical and empirical findings on the effects of financial literacy in financial inclusion. Chapter 3 presents that methodology explaining the theoretical framework and model used to analyse data and validate the research hypotheses. Chapter 4 presents a discussion of the findings. Chapter 5 sets out the conclusions and recommendations made for policy-makers in South Africa and also other emerging markets/developing countries to enhance sustainable financial inclusion penetration, while Chapter 6 presents recommendations for future research studies. The report will also have two additional sections on references and appendices.

CHAPTER TWO - LITERATURE REVIEW

2.1 Introduction

This chapter discusses the theoretical and empirical evidence on the topic of study. Definitions of terms and the theories upon which the study is based are also considered. This chapter also discusses the importance of financial inclusion and financial literacy so as to provide the readers with an appreciation of the topic under study. The determinants and barriers of financial inclusion and financial literacy are reviewed because these provide an understanding and a basis for making appropriate and relevant recommendations. Measuring financial literacy and financial inclusion has been a world-wide challenge for governments and institutions, and different indicators are being used thus an overview on financial inclusion indicators and financial literacy scores is provided. The chapter further provides an overview of financial inclusion and financial literacy levels at a global level as well as at regional level and also for emerging markets with focus on South Africa. This provides the reader with an understanding and appreciation of where the world and different economies are in terms of financial inclusion and financial literacy and helps to explore other means that can help unlock the potential in the topic of study. Finally, this chapter discusses the link between financial inclusion and financial literacy to identify what other studies have already done and found on the topic of study.

2.2 Conceptualisation and Definitions

According to the GPFI, financial inclusion is a measure of three dimensions including access, usage and quality of financial services and/or products. Access is measured from the supply side, i.e. the financial service providers including affordability, proximity, availability and regulatory framework, while usage is measured from the demand side which is the depth and extent of use of financial services and products (Alliance for Financial Inclusion; Financial Inclusion Working Data Group, 2013) Quality is defined as the ability to provide custom made financial products, that is products that meet clients' needs based on individual income levels (Triki et al., 2013). Different authors and different institutions have defined financial inclusion differently. The OECD/INFE and the BASA gives a broader definition of financial inclusion as the access and usage of a broad range of affordable, timely and quality financial products and services to the financially excluded in a simple and convenient manner through innovative approaches including financial awareness and education with a view to promoting financial well-being as well as economic and social inclusion. For the purposes of this study the World Bank definition is adopted, that defines financial inclusion as the proportion of individuals and firms that use formal financial products and services.

According to Demirgüç-Kunt , Klapper, Singer, and Oudheusden (2015) the definition of financial inclusion has changed to include those with mobile money accounts. The topic of financial inclusion has recently achieved top priority on the development agendas of various governments and institutions. Financial Inclusion is believed to be a prerequisite for achieving inclusive economic growth and alleviating poverty among the livelihoods of the poor. However, several studies have shown that financial inclusion without a financially literate population has less significant bearing on financial well-being of the citizens. Chakrabarty (2013) and India Infoline News Services (2014) write that financial literacy and financial inclusion should go hand in hand.

The results of the 2012-2013 Financial Development Barometer indicate that 72% of the respondents agree that lack of knowledge on basic financial products and services is a major barrier to financial access among the poor. The report also shows that the greatest number of financial inclusion practitioners believe that the best and most effective way to improve access to finance among low-income borrowers is financial education (The World Bank Group [WBG], 2014). Financial Literacy is defined as a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and, finally, achieve individual well-being and financial independence (OECD & BASA).

However, Cohen and Nelson (2011) note that the meaning of financial literacy means different things to different people. For example, in the developed world it may mean knowledge of tax codes and credit cards while in the developing world it may refer to basic concepts of secure savings and wise borrowings, among others. Both Dancey (2013) and Cohen et al.. (2011) highlight the need to differentiate financial literacy from financial education and financial capability, these terms have been used interchangeably in literature. Financial education is defined as a means to equip people with knowledge, skills and tools to manage their finances effectively and protect them from exploitation, while financial capability is the ability to choose and utilise financial products and engage in behaviour necessary to make sound financial decisions and achieve financial well-being.

2.3 Theoretical Framework

There is no specific theory that relates to the direct relationship between financial literacy and financial inclusion. This study is based on the microeconomic theories on saving and consumption that indicate that only fully rational and well-informed individuals have the capacity to manage their earnings through their lifetime (Mitchell & Lusardi, 2013), and microeconomic theories of financial behaviour that assume that consumers have financial skills that equip them to undertake necessary financial decisions

(Nanziri & Leibbrandt, 2016). Both the studies of Mitchell et al. (2013) and Nanziri et al. (2016) are based studies on the theories of Modigliani and Brumberg, and Friedman. These theories are:

(a) The Life Cycle Hypothesis Theory

Modigliani and Brumberg developed a microeconomic theory, the Life Cycle Hypothesis Theory, in the 1950s. They observed that people's consumption decisions are dependent on the resources available to them over their lifetime and current life stage. The assumption in this theory is that people build assets in the initial stages of their working lives and spend during their retirement. The theory also assumes that consumption patterns change, based on the needs of ones life at a particular time. The theory also makes predictions for the economy as a whole, based on observations on individual behaviours. The theory states that the aggregate saving of a country depends on the rate of growth of national income, not the level of income. It also states that the stock of wealth of an economy depends on the length of retirement plans. Other economists have found that for some reasons, the elderly when they retire do not consume as fast as the life cycle theory suggests. They found that at this stage of life people are more cautious about unpredictable expenses and illness that may incur huge medical costs and also the need to leave some wealth for their children to inherit thus they prefer to spend less. Overall researches have shown that the retired part of the model does not completely explain consumer behaviour.

The weaknesses of the theory are based on the assumptions that gave birth to the theory itself. Critics argue the following about the theory: that it is not possible to estimate so many variables as the model suggest; consumers are more concerned with their present and not the uncertain future; consumption depends on current income and not future income; spending depends on attitudes and not resources available; there are no fully rational consumers neither are there fully knowledgeable individuals about their income and future lifetime; spending is not directly related to assets because some assets are illiquid; and that the model adopted neglects savings in mutual funds. Despite these weaknesses, many studies on consumption behaviour are built on this theory and based on the observations of both Modigliani and Brumberg, and the other researchers. The author of this study notes that people are consistently involved in making financial decisions throughout their lifetime and use various means to create and secure wealth which can be through saving, borrowing and insuring against any potential losses. Whether this financial decision-making is linked to one's understanding of financial concepts is yet to be tested in this study.

(b) The Permanent Income Theory

Friedman also adopted a microeconomic theory: the Permanent Income Theory in the 1950s. This theory is related to the Life Cycle Hypothesis theory. The theory suggests that income is made up of two components, the permanent, which is anticipated and planned for, defined as the expected long-term average income, and the temporary, which is unexpected. This theory also denotes that consumption is determined by current income plus future expected incomes, meaning that spending is not affected by day-to-day earnings but rather is affected by lifetime earnings. It also asserts that only long lasting changes in income have a significant effect on spending. Friedman also defines consumption as permanent and measured income and the latter is further categorised into permanent and transitory. The assumptions made in this theory imply that the short-run consumption is linear and non-proportional while long-run consumption is linear and proportional.

Critics of the theory argue that the assumption that there is no relationship between the transitory components of consumption and income is deemed unrealistic because it means that an increase or decrease in measured income has no corresponding effect on consumption, which is contrary to actual consumer behaviour. If this assumption holds, it implies that when individuals earn unexpected gains, they will deposit all the money into a savings account and similarly, if individuals make losses, they will withdraw an equivalent of the loss value at once and spend it, which is not the ordinary observed behaviour of households. Against the assumption made in this theory that consumers have perfect foresight to make rational decisions, the empirical evidence from the studies of Lusardi and Mitchell (2014), shows that only a few individuals have the necessary financial skills to make rational decisions about saving, investing and consumption. Similarly, despite all the criticism and weaknesses in this theory, many researchers on consumption behaviour have also relied on the works of Friedman.

2.4 Summary on Theoretical Concepts

This section provides relevant definitions and explanations of key terms and concepts used in this study. It also defines the basis for the key assumption made in this study. This study seeks to verify and understand the role of financial literacy in financial inclusion. The theories on which this study is based state that only fully rational and well-informed consumers are able to manage their finances and make better financial choices, and the theories also state that consumers have enough skills to make those decisions. It, therefore, suffices for the author to assume that consumers of financial products have the necessary skills to choose relevant financial products, but this will be tested in the process of this study. The author of this study concludes to say that, based on the theories explained above only consumers who are well informed with financial concepts, which is financial literacy can make better decisions

about their financial products. The studies of Lusardi et al. (2013) and of Lusardi and Mitchell (2014) assert that financially literate people are more likely to plan, save, invest, accumulate wealth, manage their loans better and also allocate their resources over their lifetime.

2.5 Empirical Literature

2.5.1 The Significance of Financial Inclusion and Financial Literacy

2.5.1.1 Financial Inclusion

As a result of some empirical evidence that indicated a causal link between financial sector development and long-term economic growth (Levine, 1997), financial sector development has become the key policy agenda for many developing countries and many have gone further to include financial inclusion as a key to achieve this agenda. Several developments such as the Maya Declaration are all evidence of how the issue of financial inclusion has become a top priority agenda to unlock inclusive economic development of the developing countries and also to achieve global goals. The WBG regards financial inclusion as a key to the achievement of some of the 17 sustainable global goals that aim at reducing poverty and increasing shared prosperity (UNSGSA, 2016). Because of this role of financial inclusion in development, the WBG set forth a global initiative, Universal Financial Access (UFA) by 2020² (WBG, 2015) to reach out to the unbanked population. In addition the WBG and the International Monetary Fund (IMF) have both developed databases on financial inclusion to fill the data gap in the field of study. In 2006 the United Nations (UN) committee on building inclusive financial sectors urged central banks and governments to add to their development agendas the goal of universal financial inclusion (Pearce, 2011). All this is evidence of the rising importance of financial inclusion to development agendas. Financial inclusion has both micro-level and macro level benefits to the economy (Jha et al., 2014) .

(a) Micro-Level Benefits

Access to financial products and services allows the individuals and households to hold bank products or other formal financial products which gives them the opportunity to save, borrow and also manage day to day risks through insurance products. This helps the individuals to accumulate assets that can be used to start businesses, buy insurance products and can also be used as collateral to borrow leading to better education, better healthcare, the ability to deal with unexpected shocks and overall improved

² To understand how financial inclusion is linked to development goals please read UNSGSA Annual Report to the Secretary General (2016). Financial Inclusion Advancing Sustainable Development; A New Path for Development 2015-2016.

standards of living. More interestingly Demirgüç-Kunt (2014) and Jha et al. (2014) contend that financial inclusion has a greater impact on empowerment especially for the poor and women.

(b) Macro-Level Benefits

Several studies have found the macro-level benefits of financial inclusion, which includes the ability to reduce poverty and income inequality resulting in inclusive growth, enhances economic productivity and also financial stability. Kasekende (2014) asserts that to exclude 70% of the population from the financial sector for populations that rely on household enterprise to provide income for the majority of the workforce as in the case of most countries in Sub-Saharan Africa would lead to a limited contribution to inclusive growth. A more inclusive financial system has the ability to increase investments through support to household enterprises by offering them access to working capital in the form of credit, access to savings through deposits of their daily revenues which would help them to accumulate financial assets to purchase capital goods and also use the assets as collateral to access future loans and access to insurance products that would help them bear major risks. As a result individuals are provided with the opportunity to access better healthcare and improved education, which translates into enhanced labour skills thus increasing economic productivity. Jha et al. (2014) argue that increased economic productivity has a positive bearing on fiscal policies due to the increased tax base.

Sharma, Didwania, and Kumar (2011) assert that including the poor man in the financial sector gives them the opportunity to participate in activities that stimulate investment growth, thereby leading to poverty alleviation. Different researchers who suggest the effect of financial inclusion on financial stability have obtained empirical evidence. For example, the studies of Morgan and Pontines (2014) find that financial stability can be achieved through lending to small and medium sized enterprises. Hannig and Jansen (2010) found evidence that suggest that financial institutions that are serving the low income groups tend to resist macro-crises better than those that target high end customers and also facilitates in sustaining local economic activity. As such Hannig and Jansen (2010) argue that including the low-income groups in the financial sector would raise the stability of deposits and loan bases. Prasad (2011) also found that the operations of Small Medium Enterprises (SMEs) are more labour intensive, thus increased lending to SMEs leads to significant effects on overall employment growth.

Other studies also argue that to achieve global goals there is need for other incremental and complementary tools to the conventional approaches that are being employed to address global challenges such as poverty. Chibba (2009) contends that financial inclusion is one of such necessary tools that promotes inclusive development hence has the potential to address the issue of poverty. In their studies of financial inclusion in developing Asia, Park and Mercado (2015) finds that financial

inclusion has a significant effect on reduction of poverty and income inequality. Empirical evidence indicates a strong correlation between financial inclusion and poverty rates and also provides some evidence that an increase in financial inclusion would reduce income inequality in developing Asia (Park et al., 2015). These studies have shown that including the unbanked population in the financial system would increase economic activity leading to poverty reduction. Allan, Massu and Svarer (2013) indicate that the global economy would have an increase in savings of up to \$157bn a year if the unbanked population was formally included into the system through the microfinance programmes. In addition, to highlight the importance of financial inclusion, there has been an increase in debate to include the notion of financial exclusion as one of the barriers to economic development and also a call to build inclusive financial systems (Beck, Demirgüç-Kunt & Martinez Peria, 2008).

On the contrary other studies argue on the impact of increasing access to financial services on poor households. Based on the studies of Rooyen, Stewart and Wet (2012) and the studies of Cull, Tilman and Nina (2014), microcredit has mostly achieved moderate benefits to those with access to it and in some cases negative impact leading to increased poverty and this has been noticed in Sub-Saharan Africa. In the same line of thinking Khan (2011) argue that increasing access to credit has a negative effect on financial stability as it results in compromised lending standards. Other studies also argue that increased access to financial products/services can lead to over-indebtedness (Jha et al., 2014). For example the high level of indebtedness in South Africa is attributed to increased access to credit facilities due to competition from increased number of credit providers (Fanta et al., 2016). However, Kasekende (2014) argues that the mixed results on the impact of access to finance by the poor households is due to the misalignment of the services provided and the needs and abilities of the individual households to use and manage those services, and is also due to various challenges faced by these poor households. This suggests that increasing the capacity of these households on how to use and manage financial assets should yield positive results. This takes us to discuss the importance of financial literacy in the next section.

2.5.1.2 Financial Literacy

A well-informed individual is better placed to make sound decisions. A financially literate population would go beyond being able to make sound financial decisions and achieving their financial goals to a more resilient financial system and efficient allocation of resources in a real economy (Hall, 2008). In his address to the conference on Deepening Financial Capacity in the Pacific Region in Sydney, Australia on 25 August 2008, Keith Hall, the Assistant Governor of the Reserve Bank of Australia indicated that not only is financial literacy for the benefit of a social welfare perspective but it is also for a stable financial system and economic development. The benefits of governments spending much more money

on improving financial literacy rates outweigh the costs that would result from a financially illiterate population.

A financially illiterate population is more likely to make poor financial decisions leading to lower standards of living, and, ultimately, poor economic growth. Based on the findings of the study funded by the Commonwealth Bank in Australia in 2004, as mentioned by the Assistant Governor of the Reserve Bank of Australia in his address note at the 2008 conference, increasing the level of financial literacy among those who were the least financially literate in Australia would raise their household incomes as well as reduce unpaid bills and add to about \$6 billion a year to their GDP and create over 16000 new jobs. A financially literate population has the greatest potential to boost financial stability by bringing market discipline to the financial system and avoiding unnecessary credit that would make them to default on their loans leaving the banks with huge bad debts accounts. Hall (2008) asserts that a well informed customer has the ability to choose a properly run financial institution thereby bringing discipline to the financial service providers which in turn results in a stable financial system.

Financial literacy also leads to economic development through efficient use of resources. A financially literate population will most likely put their resources to more productive activities with optimal risk-adjusted returns leading to more economic activity. For example, in the United States many people took sub-prime loans to purchase houses for themselves when they were unable to meet their obligations. This resulted in the well known Sub-prime crisis and housing bubble called the 2008 Credit Crunch which affected both the US economy and the global financial system. Gerardi, Goette and Meier (2010) show that financial literacy has a substantial impact on defaulting mortgage payments. Huston (2010) asserts that the mortgage crisis and bankruptcy rates are evidences to substantiate need for financial literacy. Demirgüç-Kunt (2014) contends that enhancing financial literacy is the responsible way of improving financial inclusion because it educates and protects consumers from making grievous mistakes.

Other studies have also found similar and other various reasons why financial literacy is important. In their studies in Brazil, Diniz et al. (2012) find that increasing access to financial products to low-income populations without other inclusive mechanisms such as financial education, which is a fundamental way to enhance financial literacy, would yield adverse effects such as over-indebtedness. Chibba (2009) indicates that the studies of (Chibba, 2007, 2008c) found evidence that financial literacy is an enabling tool in making informed use of microfinance, promoting participation in the formal financial sector and in helping many people with issues regarding borrowing, spending, saving and finance. Financial

literacy is one of the key driving factors (Sukumaran, 2015) and is also an enabling tool to unlock other key dimensions of financial inclusion (Gardeva & Ryhne, 2011). Lusardi, Michaud, and Mitchell (2013) state that financial knowledge is for the benefit of both the economically vulnerable as well as the population at large. It is also critical even for those who rely on financial advisors, since sometimes the financial advisors do provide misleading advice that may be costly to the consumer (Turner, Klein & Stein, 2015). Studies have also shown that low financial literacy affects financial behaviour (Lusardi, 2008). De Bassa Scheresberg (2013) states that by being financially literate young people would avoid using high cost borrowing options. The findings of these different studies show the importance of financial literacy towards saving, managing loans and allocating resources over their lifetime.

In summary, Chibba (2009) suggests that according to Chibba (2008c), and based on field research and analysis of related literature, financial sector development and financial literacy are among the key four pillars in addressing the challenge of poverty. In his journal article, Chibba indicates that recent developments evidenced in policy and research papers (for example, DFID, 2006; Claessens & Feyen, 2007; World bank, 2008) and the idea that large multilateral organisations and several developing countries especially the emerging market economies such as India, Brazil and South Africa are declaring inclusive development as a top priority among their policies, shows that financial inclusion is key in financial sector development. Chibba (2009) also asserts that unlike the developing countries that are more vulnerable, emerging markets like China and India are well positioned to handle external shocks due to, among other reasons, inclusive growth agendas. Therefore, understanding the significance of financial inclusion and financial literacy and the link between them at country level, especially in emerging markets like South Africa, will help policymakers in the country to design and implement financial education programmes that will enhance financial literacy among individuals and, eventually lead to increased and effective use of financial services thereby reducing poverty and increasing economic growth and economic development in their various countries. Policy-makers from other developing countries can also borrow ideas from South Africa to design tools within their context to enhance financial inclusion

2.5.2 The Determinants and Barriers of Financial Inclusion

2.5.2.1 The Determinants of Financial Inclusion

Various researchers have found and documented differing factors that are determinants of financial inclusion. In his studies across the globe, Chibba (2009) found that high-level factors such as private sector development, financial literacy, microfinance, and public sector development also have key roles

to play to improve financial inclusion across the globe. In addition according to Allen et al. (2016), the use of financial products in many countries is mainly linked to low transaction costs, proximity to the financial institutions, strong legal rights and stable potential environments. In Africa, according to Evans and Adeoye (2016), per capita income, broad money (percentage of GDP), literacy, internet access and presence of Islamic banking play a significant role in financial inclusion, while inflation and population, domestic credit through the financial sector (percentage of GDP) and deposit interest rates are not significant. Zins et al. (2016) finds that socio-demographic and economic profiles of individuals also play a crucial role in financial inclusion in Africa. They find that being a man, richer, educated and older increases the probability of being financially included with education and income having more influence. For the studies conducted in the developing Asia, Park et al. (2015) state that per capita income, rule of law, and demographic structures all have a significant influence on financial inclusion. Per capita income is the main determinant in developing Asia. In their studies they found that primary education completion and literacy rates have no significant effect on financial inclusion in developing Asia. Chitra and Selvam (2013) assert income, literacy and population to be significant factors that influence financial inclusion from the demand side of it in India. This shows that different countries are influenced by different factors. These factors have been categorised by different authors as set out below.

(a) Demand Side Factors

Demand side factors involve an individual's characteristics that affect willingness, capacity and the ability of the individual to make informed choices and decisions about financial products. According to Sukumaran (2015), financial inclusion strategy has been debated in terms of both demand side factors and supply side factors. Examples of demand side factors among others include accessibility (location of residence), culture, assets, income and literacy (Ghatak, 2013).

(b) Supply Side Factors

Supply side factors relate to how financial services providers operate. Supply side factors include business models, service quality, bank charges and regulation just to mention a few (Chakrabarty, 2012).

(c) Country Factors

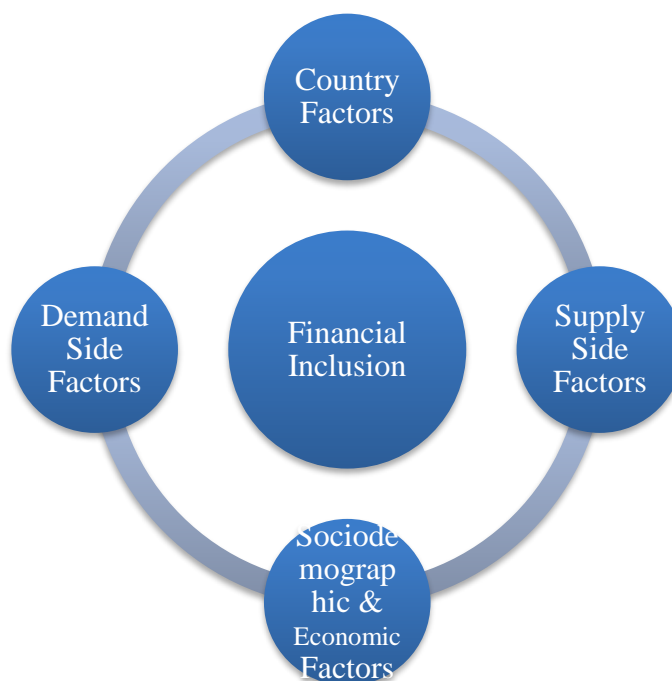
Chibba (2009) describes private sector development, financial literacy, microfinance and public sector development as country characteristics. These are factors that influence financial inclusion from a broader and country's perspective, which is the role of financial inclusion to reduce poverty and achieve global goals.

(d) Socio-demographics and Economic Factors

The literature shows that financial inclusion also varies according to individual socio-demographic and economic profiles, and the effects of different variables vary from one country to another.

What is the case for South Africa? The literature shows that financial inclusion in South Africa is affected by several factors including macro-level characteristics, behavioural attributes, financial literacy and socio-demographic and economic profiles of individuals. Chibba (2009) contends that financial sector development, legal and institutional framework have played a significant role in increasing access to credit in South Africa. The government of South Africa and the financial institutions have worked together to address the issue of financial exclusion. Since the development of the FSC and other initiatives (see Appendix A), there has been a significant increase in financial product uptake. However, South Africa still faces a challenge relating to the effective use of these products. Product features also play an important role in use of financial products. The introduction of the Mzansi account, funeral cover policies and SASSA cards targeted at low income earners has also led to increase in account penetration. Kostov et al. (2015) find that financial aspirations and financial literacy have played a significant role in the uptake of these products. Kostov et al. (2015) argue that these are entry products for the low-income earners and usage is significant because these products are available to them and they do not have any aspirations to explore other products. In addition financial literacy initiatives have equipped these low-income earners with knowledge to accept these products. However, the level of financial literacy they have does not motivate them to climb up the financial ladder. Lastly, several studies show that socio-demographic and economic attributes of individuals also play a significant role in South Africa. Refer to section 3.3.1.3 for the detailed explanation of what role socio-demographic and economic factors have played in South Africa according to previous studies.

Figure 1: Summary of Classifications of the Determinants of Financial Inclusion



Source: Author's Construct

2.5.2.2 Barriers to Financial Inclusion

The literature shows that a wide diversity on usage of financial products exists across regions and countries. Various reasons have been cited for limited access and usage of financial products especially in the developing countries. For people to make savings and access credit and buy insurance products, they need to have an access to a bank account (Arun and Kamath, 2015). Access, hence the usage of financial products, are both hindered by both supply and demand side factors. However, different terminologies are used to classify the barriers to financial inclusion as follows.

(a) and Access Barriers

Access barriers are measured in terms of affordability, availability, proximity and the enabling environment of the products and this is usually linked to the supplier. Usage on the other hand is measured from the demand side, that is the depth and extent of use of the financial products by the consumers. Kunt (2014) makes an important distinction between use of finance and access to finance. People may have access to finance, but for various reasons choose not to use the financial products available to them. As such barriers to financial inclusion are distinguished between usage barriers and access barriers but in the literature the two have been interchangeably used.

Diniz et al. (2012) assert that access to financial services by the poor largely depends on the functions of the mainstream financial service. It is extremely difficult for the poor to access and/or use financial services /products in the formal sector due to high transaction costs, lack of proper infrastructure for the service provider to reach out to the customers especially in rural areas. (Kasekende, 2014) and, Diniz et al. (2012) also include lack of credit histories as one of the access barriers. (Kasekende, 2014). In addition, Kunt (2014) asserts that individual characteristics, enabling environment, documentation requirements and government policies are the major barriers to the access and usage of financial products. Fungáčová, and Weill (2014) distinguishes the reasons that hinder access and usage of financial products between the poor and the rich people. According to their studies in China in 2015 they find that the poor are hindered by lack of money and reliance on another family member's account, while the rich are constrained by transaction costs and lack of trust in the system. They also find that women are excluded due to lack of documentation and use of another family member's account, whilst older people are more worried about distance, lack of money and religious beliefs. According to the studies of Kostov et al. (2015) and of Zins et al. (2016), behavioural attributes also have a bearing on the usage of financial product. For example their studies finds that aspirations and financial literacy are key determinants of the decision to own and use a financial product in South Africa. Literature also shows that gender plays an important role in financial inclusion. Demirgüç-Kunt et al. (2013) find that gender discrimination hinder women from accessing formal financial services.

(a) Voluntary and Involuntary Barriers

Other studies have classified barriers to financial inclusion as voluntary and involuntary. Demirgüç-Kunt (2014) and Cámara and Tuesta (2012) describe cultural and religious factors as voluntary exclusion while the rest of the barriers are described as involuntary. Cámara et al. (2012) also adds that when people do not see the need to use financial services is a voluntary barrier to being financially included. Zins et al. (2016) also distinguish the reasons between voluntary and involuntary citing religious beliefs and use of another family member's account (no need to have an account) as voluntary and the rest as involuntary. Zins et al. (2016) argues that involuntary exclusion is driven by market failures and that making such a distinction helps in making the right policy recommendations.

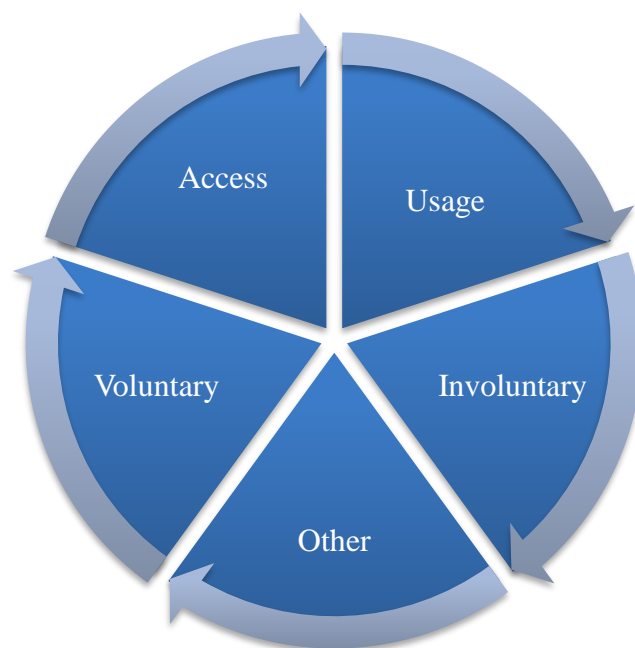
(c) Country Barriers

Recent studies have shown that other constraints such as policy environment (regulatory framework) and transparency of the financial institutions are also potential barriers to financial inclusion (Arun et al., 2015). In line with similar results are the studies of Allen et al. (2016), that find that country level characteristics such as high quality institutions, efficient legal rules, strong contract enforcement, and political stability have the ability to increase financial inclusion.

Similarly, financial exclusion in South Africa is due to different reasons including those mentioned above. According to the FinScope Survey, (2014) inclusion in the financial sector in South Africa is mainly hindered by unemployment, cultural characteristics, technological and transactional costs. In addition, the results of the research carried out on financial inclusion in South Africa by BCG indicate the following as a hindrance to accessing formal financial services: perception of high fees; mistrust in the financial system; fear of fraud involving digital technology; massive paperwork; long response times and other legal requirements (World Economic Forum, 2017).

Although financial literacy has not been mentioned in the above paragraph as a barrier to financial inclusion in South Africa, the studies of Kostov et al. (2015) and those listed in the problem statement have all attributed the inability of individuals to make meaningful participation in the financial market to the lack of financial literacy. Moreover, a lot of the literature also shows and acknowledges the significance of a literate population in relation to financial inclusion as well as poverty alleviation and economic development as illustrated in section 2.3.2 above.

Figure 2: Summary of the Classification of the Barriers to Financial Inclusion



Source: Author's Construct

2.5.3 The Determinants of and Barriers to Financial Literacy

Most studies have indicated that financial literacy is mainly determined and hindered by socio-demographic and economic characteristics of individuals. In their studies in emerging markets, West (2012) found that financial literacy is strongly associated with age, gender, education, religion, race, and social networks. In addition to this Potrich, Vieira, and Kirch, (2015) observed that having dependent family members, employment status, income levels and parental education levels are all factors which play an important role in financial literacy levels. Location of residence also affects literacy levels in the Southern African Development Community (SADC) region (Fanta et al., 2016). People living in rural areas have less access to schools and information and thus reveal low levels of financial literacy. The relationship between socio-demographic/economic variables and financial literacy is further explained in section 3.3.1.3.

2.5.4 Financial Inclusion Indicators and Financial Literacy Scores

2.5.4.1 Financial Inclusion Indicators

In 2012 at the G20 Los Cabos Summit, The Group of Twenty endorsed the G20 Bases set of Financial Inclusion Indicators in support of the GPFI recommendations for the G20 to support global and national financial inclusion data efforts. An additional set of indicators was endorsed at the G20 St. Petersburg Summit in 2013 to measure financial inclusion and the quality of financial service provisioning and consumption. In 2016, due to the rise and continued development of new digital models, new indicators were developed to measure the use, availability, and quality of digital financial services (GPFI, n.d.). The aim of these indicators is to inform and enable policy-makers to monitor the development of financial inclusion, both at a national and at a global level. These indicators can be used in conjunction with country-specific indicators to enhance relevance to each country's context. The data used in developing these indicators reflects both supply side and demand side factors of financial inclusion. According to the GPFI, financial inclusion indicators are categorised into three dimensions including usage indicators, access indicators and quality indicators. Appendix B shows the various indicators used to measure financial inclusion. This study will focus on the four usage indicators (the percentage of individuals holding formal accounts/banking products, the percentage of individuals holding formal investment/savings accounts, the percentage of individuals using formal credit/loan products and the percentage of formal insurance policy holders). These according to WBG are the key financial inclusion indicators and will be used in this study as the dependent variables. South Africa adopted these same indicators to measure financial inclusion within the context of the products and services available in the country. This study uses the World Bank indicators within the South African context (see Appendix C and Appendix D).

2.5.4.1.1 Understanding Account Ownership

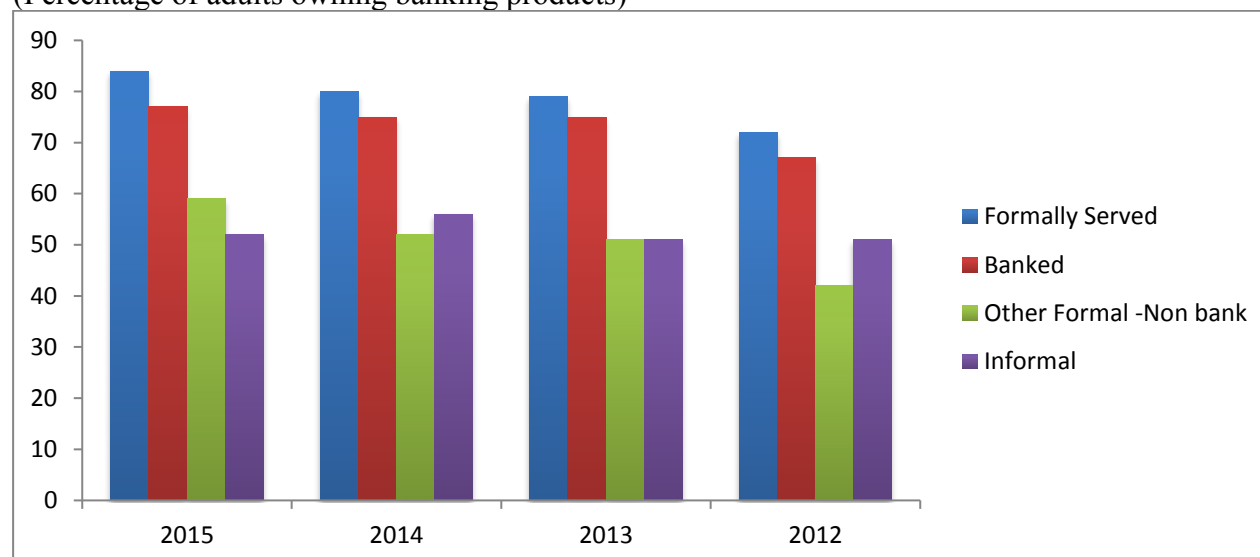
Account ownership refers to having an account at a formal financial institution such as a bank, credit union, cooperative, post office and microfinance institution (Demirgüç-Kunt & Klapper, 2012). Due to the rise in innovations of technology, account ownership also includes ownership of a mobile money account (Demirgüç-Kunt, Klapper, Singer, and Oudheusden, 2015). In the literature in the area of study account ownership and account penetration have been used interchangeably. Most of the people in the developing world remain unbanked for various reasons including inadequate income, the cost of opening and/or maintaining an account, distance, religious beliefs and paper work requirements. Triki et al. (2013) find that the number of the unbanked population is even larger in the Africa fragile states due to poor infrastructure and security threats, yet the fragile states in Europe have higher penetration rates. Account penetration varies across and within the regions. Demirgüç-Kunt et al. (2012) notes that Middle east and North Africa have the lowest penetration levels among the regions with some economies such as Republic of Congo, Cambodia and Guinea being as low as 5%, while other developing economies report a penetration rate of 41% and high income countries report 89%. Triki et al. (2013) discovered that most people in Africa do at most two deposits/withdrawals in a month and only 14% use debit cards and also that the majority of the people who own an account use them to receive remittances from family and friends living abroad, and according to Sile (2013), this practice is most common in fragile states. The likelihood of using an account increases with the increase in absolute and relative household income (Demirgüç-Kunt et al., 2012). South Africa, Nigeria and Kenya, the biggest economies in Africa, have the highest penetration rates as compared to other countries on the continent (Triki et al., 2013).

According to the FinScope (2016a), 89% of the adults in South Africa are financially included, 77% of whom have an account with the bank. The percentage of the financially included goes down to 58% excluding South African Social Security Agency (SASSA) cardholders. The number of account holders has also increased due to changes in innovation and technology such as the use of mobile banking (Finscope, 2014). However, the 2014 FinScope SA report indicates that the increase in account ownership has not resulted in a corresponding increase in savings and investments, which is an indication that account owners are mostly using them to run day-to-day transactions other than developmental activities. According to the results of the BCG recent assessment of South Africa, most of the transactions about 60% are cash based and the percentage is even higher among low-income groups (Kessler et al., 2017). The results also show that very few people can afford to make transactions such as withdraws, transfers and card swipes over a period of three months. It appears that the majority of the people with an account use it mainly to receive their salaries. The authors also found that, unlike other emerging markets, account penetration rates are relatively consistent across gender and by location. Fanta et al. (2016) asserts that people are more likely to own an account when they understand it. This

means that financial education programmes aimed at imparting financial skills to individuals are likely to enhance financial inclusion in the country. Figures 4 and 5 below provide an illustration of account penetration across the globe while the figure below illustrates the case in South Africa.

Figure 3: Trend in Account Ownership in South Africa

(Percentage of adults owning banking products)



Source: FinScope SA Reports

2.5.4.1.2 Understanding Saving Behaviour

Having an account does not translate into savings. People use accounts for various and different reasons such as to make payments, and to receive wages and remittances as mentioned in section above. Not all save through the banks, others use other alternatives. These alternatives in high-income countries include government securities, commodities, equity and other traded markets, while in developing countries, saving clubs are the common alternatives (Demirgüç-Kunt et al., 2012). For example these informal clubs are known as Chama in Kenya, Group Village Banking in Malawi, and Stokvels in South Africa. Regardless of the saving mechanism, among the reasons for saving are education, weddings, emergencies, and to buy purchases. According to the findings of Demirgüç-Kunt et al. (2012), high-income countries are more likely to save followed by Sub-Saharan countries and East Asia then the pacific region. In their paper Triki et al. (2013) reveal that the proportion of people in Africa that responded to have saved in the past 12 months is similar to the worldwide average. This provides an opportunity for future studies to understand why individuals in countries with high account penetration rates do not use the accounts for saving as much. However, they noted a wide variation across and within regions and also by individual characteristics. Triki et al. (2013) find that the majority of people in Africa rely on community-based savings. People are hindered from accessing formal savings by similar reasons that reduce account penetration. However, these informal savings are not secure and do not give

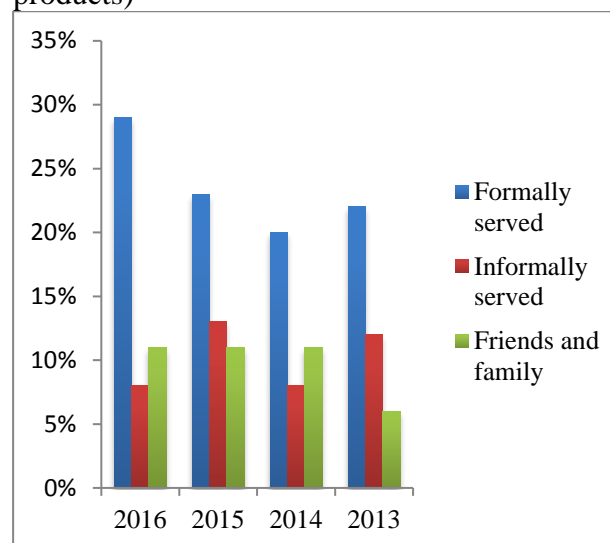
individuals a chance to build assets for future consumption, neither can they use that as collateral to access loans in future. This shows the need to increase access to formal financial services. Triki et al. (2013) suggested that countries in the developing world should borrow from models used in Kenya, Tanzania and Uganda to improve financial inclusion. This model links the formal sector and informal sector whereby the financial institutions provide customised products to the informal groups.

Among the reasons for savings in Africa are farming, business Start-up and/or growth, retirement and education, while retirement is the least motivation for saving (Zins et al., 2016). According to the studies of Zins et al. (2016), individual characteristics play a role in motivations for formal saving but the effect of these individual characteristics is consistent across the different motivations. Regardless of what the motivation is, they find that being a woman, poor, and less educated decrease the chances of making formal savings. An interesting observation was made in informal savings where gender plays a significant role, with more women preferring informal savings to formal savings. Education has no influence. However this practice is not enough to cancel out the gender gap in the formal sector. Another interesting practice was observed in Africa fragile states where people prefer to have an account at a financial institution to make savings, unlike most of the countries where accounts are only used to receive money. This is due to massive security threats to keep money in the informal channels.

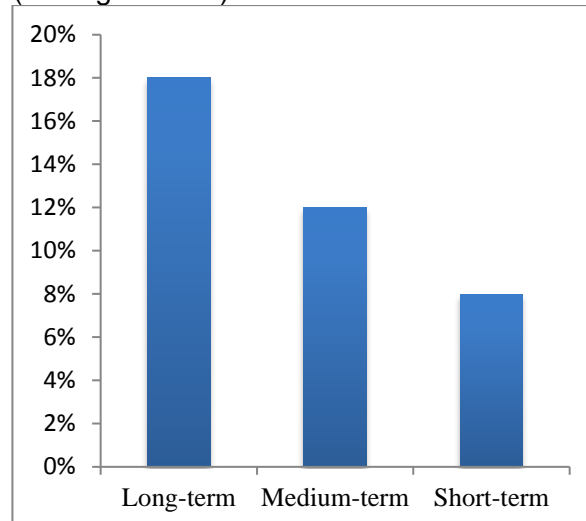
In South Africa savings are deemed to be low at 33% and to have stagnated over the years and the poor savings culture is more common in the youth aged 16-24 years (FinScope, 2016; FinScope, 2014). People save for different reasons and use both formal and informal means to save. The 2014 FinScope report for South Africa shows that the majority of people in South Africa use savings as a coping mechanism for emergencies and other day-to-day expenses. The long-term savings rate as a share of GDP is the lowest in the world, being one half of India and a quarter of China (Kessler et al., 2017). The authors of the BCG report state that the savings products do not match the needs of an average South African, while the report attributes the weak savings culture to people's expectations that it is the government's role to provide its citizens with their needs. Individuals who use informal means do so due to convenience (Fanta et al., 2016). The 2015 report shows that 40% of the respondents save for emergencies, 12% for funeral costs, 21% for food, 15% for education, 13% to take care of family members in case of death and 11% for retirement. Appendix E provides an overview of the saving patterns for the world at large and across regions, different income groups and selected emerging markets. The figures below provide the latest indication of the various means that people use to save and also the period they save for in South Africa.

Figure 4: Trend in Savings Behaviour in South Africa

(Percentage of adults owning savings products)



(Savings Period)



Source: FinScope SA Reports

2.5.4.1.3 Understanding Credit Behaviour

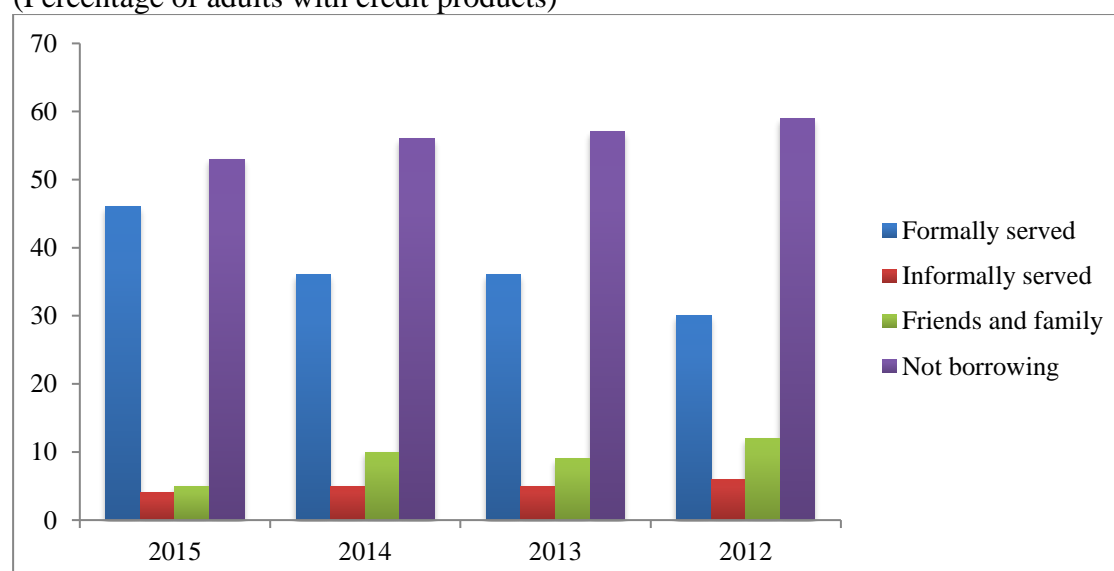
The rate of borrowing is high in Africa with a wide variation across countries. People borrow whether formally or informally for funerals, weddings, school fees, emergencies, medical expenses, education and for their businesses (Zins et al., 2016; Triki et al., 2013)). However, Zins et al. (2016) assert that people only borrow formally to buy a house and/or land. Family and friends represent the most popular source in the region and possibly the only source for others simply because does not need any collateral or any documentation (Triki et al., 2013). Although this source is common, it varies by individual characteristics. Other sources include trade credit, employers, money lenders while very few especially in Southern Africa use credit cards (Triki et al., 2013). They also observe that a lot of people in Africa fragile states cannot access formal credit due to the lack of proper infrastructure such as credit Bureaus.

The use of formal credit in South Africa at 12% is considered to be the same as in other emerging markets, however, as compared to other African economies this is below Kenya (15%) and above Nigeria (5%) and India (6%) (Kessler et al., 2017). On the use of credit card, South Africa at 13% ranks below the other emerging economies like Brazil (32%), Russia (21%) and Mexico (18%). The informal credit channels still take the greater share of the credit market and unsecured personal loans growing rapidly as compared to other emerging markets. According to Fanta et al. (2016) the high credit penetration in South Africa is due to increased number of credit providers, which has resulted in increased competition and fewer borrowing restrictions. Unfortunately, the 2015 FinScope Survey report

for South Africa and the BCG recent assessment discovered that the majority of people borrow to cover daily living expenses (non-income generating activities) rather than income generating activities/developmental activities. The proportion of people using credit in South Africa is 51% (FinScope, 2016). The FinScope report shows that the people use credit products and use this money to supplement daily living expenses as follows: food (26%), emergencies (26%), transport fares (12%), utility bills (10%) and clothing (10%) (Finscope, 2015). The studies of Fanta et al. (2016) show that those who use professional advice borrow for developmental purposes, thus showing the need for, and effect of, financial literacy. Refer to Appendix E for credit patterns across different regions and income groups. The figure below illustrates borrowing patterns in South Africa.

Figure 5: Trend in Borrowing Behaviour in South Africa

(Percentage of adults with credit products)



Source: FinScope SA Reports

2.5.4.1.4 Understanding Insurance Behaviour

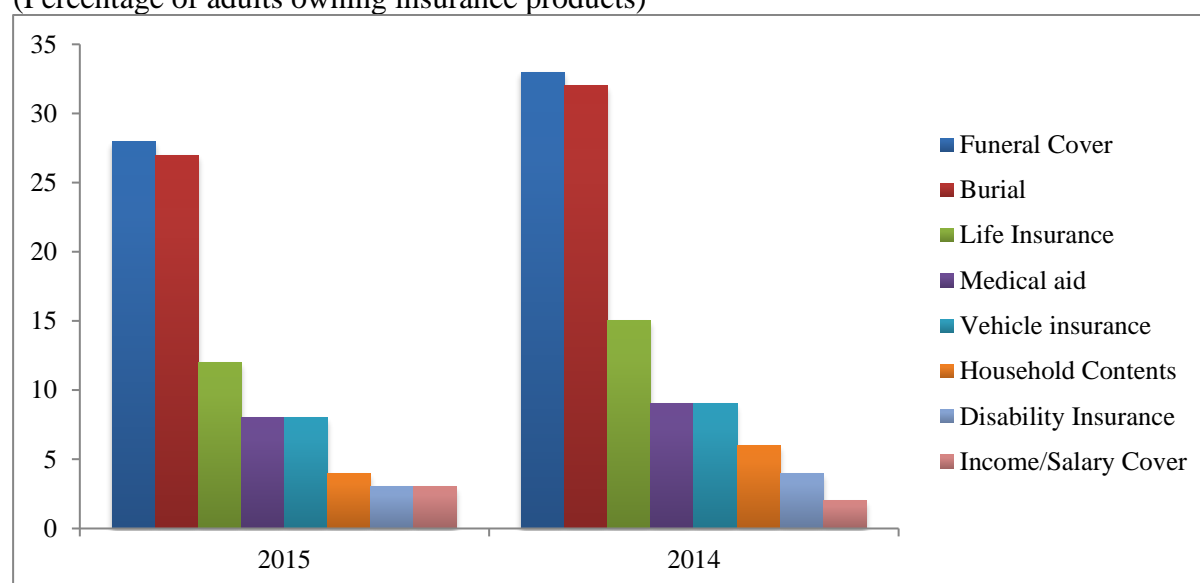
Insurance penetration remains very low in Africa. Very few, and mostly men, buy health insurance and agriculture insurance (Triki et al., 2013). The increased threat due to climate change has led to an increase in agriculture insurance in developing countries where the majority of the population relies on agriculture (Demirgüç-Kunt et al., 2012).

Insurance penetration in South Africa just as in other countries in Africa remains very low at 22% excluding funeral expenses but there is a growing trend in funeral cover (FinScope, 2016). The BCG findings show that the insurance market is dominated by life insurance due to funeral and burial covers (Kessler et al., 2017). Whether investing in funeral policies makes much better financial sense than making savings for the future, especially when there is no funeral in a family over a long period, is something to be investigated. The low penetration in the insurance market is attributed to a low

awareness of insurance products in the country (Fanta et al., 2016). This also substantiates the need for financial literacy. Fanta et al. (2016) contend that, despite the challenges of costs and access to insurance products, knowledge would play an important role in increasing ownership of insurance products. Below is a figure that provides an illustration of insurance behaviour in South Africa.

Figure 6: Trend in Insurance Product Uptake in South Africa

(Percentage of adults owning insurance products)



Source: FinScope SA Reports

2.5.4.2 Financial Literacy Scores

According to the 2015 OECD/INFE financial literacy measurement scores include financial knowledge score, financial behaviour score and financial attitude score. The 2016 OECD survey on financial literacy includes financial awareness and financial skill as other dimensions for measuring financial literacy. The overall financial literacy score is measured as the sum of all the scores of all dimensions. However, countries like South Africa use different terms to explain the behaviour, attitude, level of knowledge and awareness towards financial products. Financial knowledge, financial behaviour, financial attitude and financial awareness are named as financial knowledge and understanding, financial planning, financial control, and product choice and awareness respectively (HSRC). These variables have been thoroughly described in section 3.3.1.

2.5.5 Overview of Financial Inclusion and Financial Literacy Levels

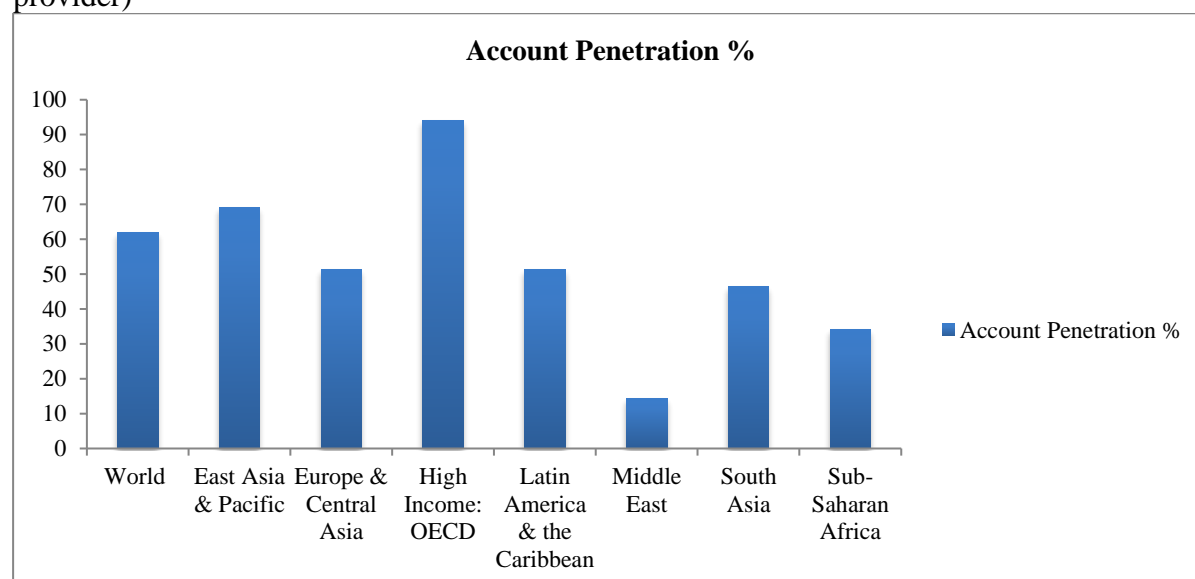
2.5.5.1 Overview of Financial Inclusion and Financial Literacy Levels at Global Level

Levels of financial inclusion vary greatly across the continents, between regions and also between countries. According to Ardic et al. (2011), 64% of the unbanked population across the world come from

developing countries, while 17% are from high-income countries. Allen et al. (2014) find that there is a big gap in the use of financial products between high-income countries and developing countries. Account penetration in high-income countries was at 91% and in developing countries it stood at 41% in 2011, while in 2014 the account penetration rate for high-income countries was 94% and 54% for developing countries, according to the Global Findex Database. This shows a significant increase in the developing countries but that is attributed to the use of mobile money accounts. They also find that within the developing countries, the level of economic development plays a significant role in account penetration. Adults in upper middle-income countries are three times more likely to have an account than those in low-income countries. Yet one common thing they found between developed countries and developing countries is that only a small percentage in both developed and developing countries use their accounts for savings. According to the Global Findex Database compiled by Demirgüç-Kunt et al. (2015), only 62% at a global level have an account at a bank, another financial institution and/or mobile money provider. The number of the unbanked dropped by 20% and the number of those who are financially included increased from 51% to 62% between 2011 and 2014. Thirteen percent of the drop in the unbanked population is attributed to the rise in innovations in technology in developing countries (Demirgüç-Kunt et al., 2015). According to their study in Africa, Zins et al. (2016) find that Southern Africa ranks high in terms of account ownership and usage at 51% followed by Western Africa at 18%, Central Africa at 11% and North Africa at 4%. Their studies show that Africa takes the leading role on mobile banking. On the other hand, the studies of Klapper, Lusardi, and Oudhensden (2015) show that not all who use financial products are financially literate. According to their studies, only 33% of the adults worldwide are financially literate, but this average varies between countries ranging from 71% to 13%. They note that Northern Europe has the greatest number of financially literate people at an average of 52%. Denmark, Norway and Sweden are all at 71% while South Asia has countries with the lowest scores, Yemen at 13%.

Figure 7: Account Penetration by Region

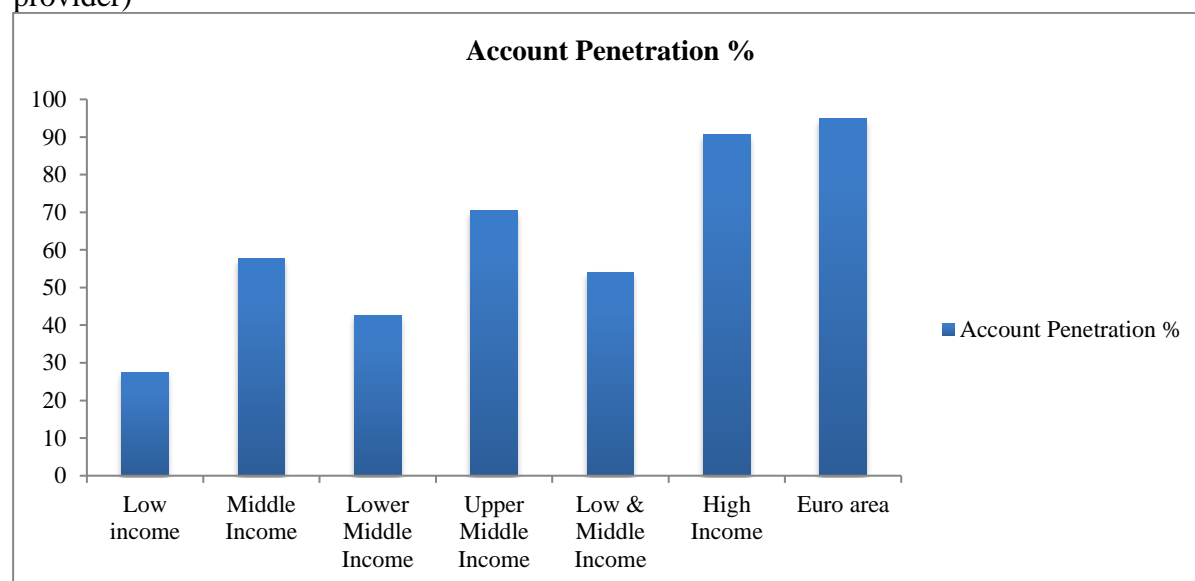
(Percentage of adults who have a formal account at a bank, financial institution and mobile money provider)



Source: 2014 Global Findex Database

Figure 8: Account Penetration by Income Groups

(Percentage of adults who have a formal account at a bank, financial institution and mobile money provider)



Source: 2014 Global Findex Database

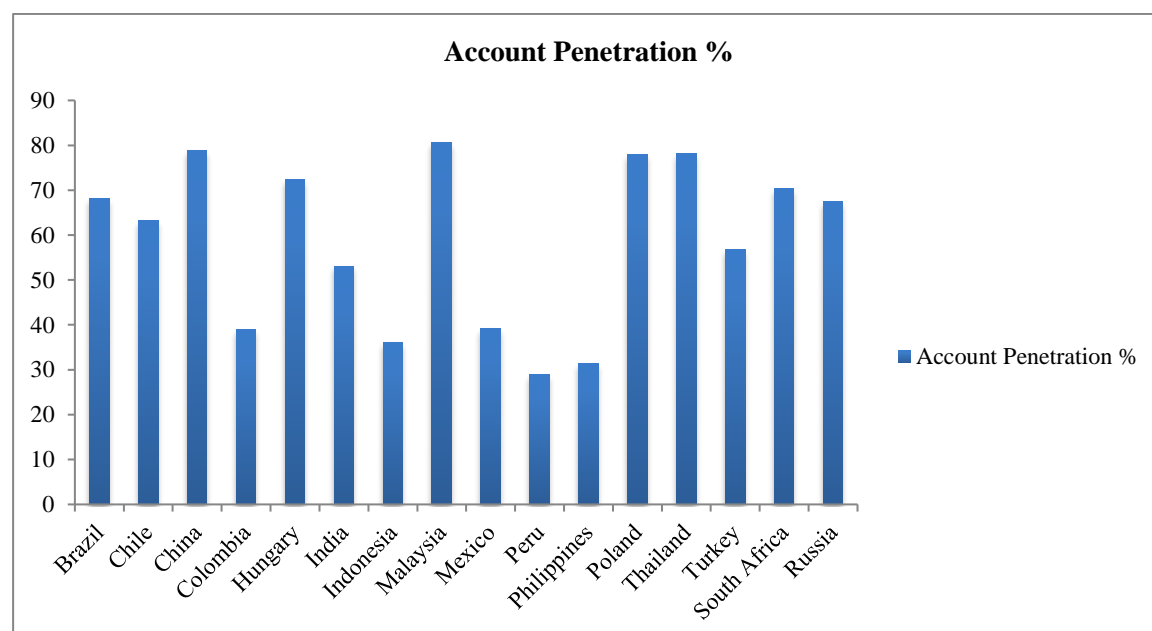
2.5.5.2 Overview of Financial Inclusion and Financial Literacy Rates in Emerging Markets and South Africa

Different institutions have different lists of emerging economies, but IMF, Morgan & Stanley, and Standard & Poor's agree on a number of countries as being emerging economies (see Appendix F). These countries are spread across regions according to World Bank analytical regions (see Appendix G)

and most of these countries are upper middle-income economies except for Chile, Poland and Russia, which are classified as high-income countries and India, Indonesia and Philippines that are classified as lower middle-income economies (Demirgüç-Kunt et al., 2015). On average account penetration for upper middle-income economies is 71%, but this varies across the economies, while financial literacy levels are below 40% in most of the major emerging economies. South Africa was one of the first countries in the developing world to take significant steps towards financial inclusion and is one of the countries in the SSA region with high penetration rate (Chibba, 2009). According to the (FinScope Survey, 2016), account penetration in South Africa is at 89%. Despite the high penetration rate and a developed financial sector, only smaller number of adults can demonstrate financial literacy skills (Fanta et al., 2016). The financial literacy rate in South Africa, according to Klapper et al. (2015) is 42%, while according to the FSB is slightly above 50%. From Figure 9 and Figure 10 below it appears that, regardless of the high financial inclusion, penetration in most of the emerging markets and even advanced economies like Italy and Japan, financial literacy levels are considerably low. It is surprising that even the least developed countries like Malawi (35%), Zambia (40%) and Bhutan (54%) have higher literacy levels than some of the major emerging markets.

Figure 9: Account Penetration in Emerging Markets

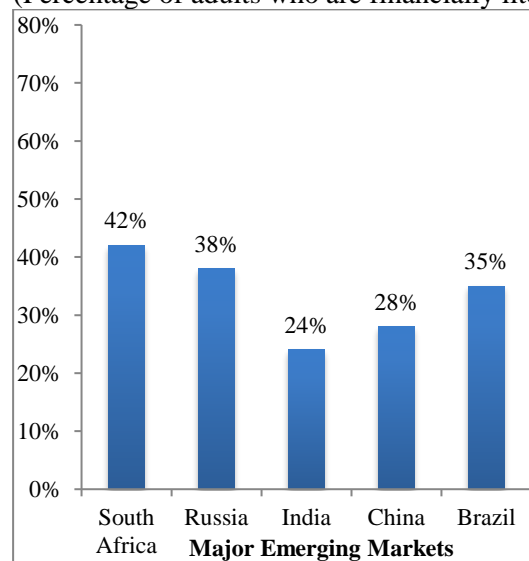
(Percentage of adults who have a formal account at a bank, financial institution and mobile money provider)



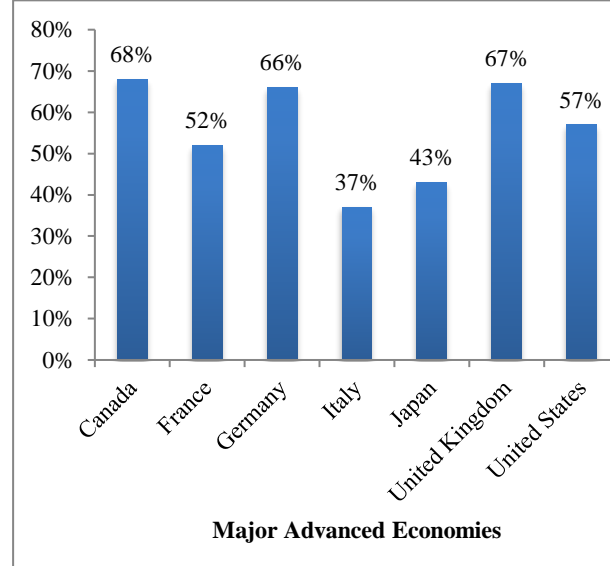
Source: 2014 Global Findex Database

Figure 10: Financial Literacy Around the World

(Percentage of adults who are financially literate)



Source: Klapper *et al.* (2015)



2.5.6 The Link Between Financial Literacy and Financial Inclusion

The main link between financial literacy and financial inclusion is that financial literacy is the demand side of financial inclusion Ghatak (2013). According to Subbarao (2013), financial literacy provides an awareness of the financial products/services while financial inclusion provides access. This study is informed by the theory and evidence analysed by several studies such as the studies of Lusardi et al. (2013), Sukumaran (2015) and other studies. The study of Lusardi et al. (2013) explains how financial literacy facilitates the effective use of financial products/services and cites that the studies of Kimball and Shumway (2006); Christelis, Jappelli, and Padula (2010); van Rooij, Lusardi, and Alessie (2011); Yoong (2011); Almenberg and Dreber (2011); Arrondel, Debbich, and Savignac (2012) have shown evidence that financially literate individuals are more likely to participate in financial markets. Kasekende (2014) asserts that, improving financial literacy levels can enhance access to financial services. Studies of Sukumaran (2015) identify financial literacy as the foremost factor that determines the extent of financial inclusion. It can indeed be viewed as the enabling factor that unlocks the other key dimensions of financial inclusion (Gardeva & Rhyne (2011)).

On the other hand, other studies find that higher levels of financial literacy do not translate into higher levels of financial inclusion which means financial literacy is only insignificantly related to financial inclusion (Wachira & Kihui, 2012). Other studies have also found similar results, especially if financial literacy is benchmarked against further determinants of financial inclusion. Due to these opposing views and additional weaknesses in the previous studies on the topic of study as discussed in the problem statement, this study seeks to establish the relationship between financial literacy concepts and financial inclusion indicators in order to arrive at more conclusive results.

2.6 Summary and Conclusions

This section presents a detailed explanation of the importance of financial inclusion and financial literacy both at global and country level and also in relation to individuals' welfare. The literature shows the significance of undertaking a research in this area to come up with policy recommendations for policy-makers. The section has also described the determinants of financial literacy and financial inclusion. In summary, financial literacy is mainly affected by the socio-demographic and economic characteristics of individuals. Financial inclusion is

affected by both supply side and demand side factors, plus country and individual characteristics. A brief description on the barriers of financial inclusion has been outlined so as to bring this to the awareness of policy-makers to help them design instruments aimed at enhancing financial inclusion with those challenges that are out there in mind. A distinction between various classifications of the determinants of and barriers to financial inclusion has been highlighted. This helps the researcher to make appropriate recommendations. The access and involuntary barriers to financial inclusion are simply the supply side determinants of financial inclusion, while the usage, voluntary and socio-demographic and economic barriers are the demand side factors of financial inclusion. The author notes that financial literacy is less referred to as a barrier to financial inclusion in literature yet its significance, as indicated in section 2.4.1.2, provides enough reason why a study in this area is extremely important.

The author has also provided a discussion of the financial inclusion indicators and financial literacy scores that are used to measure financial inclusion and financial literacy in this study. These are widely accepted World Bank, GPFI and OECD variables. The HSRC has adopted the same framework in line with the OECD and uses the same indicators as the WB/ GPFI to measure financial literacy and financial inclusion respectively. This section also provides an overview of financial literacy and financial inclusion levels at global as well as at regional level and also provides brief information on emerging markets, focusing on South Africa. The literature shows that South Africa has highest penetration rate in the region. This makes South Africa the best country in which to undertake a research in the area of study so that the results and recommendations made can be extrapolated to other countries in the region. The last part of the section explains the link between financial literacy and financial inclusion. Most studies show that financial literacy has a positive effect on financial inclusion, but other studies find contradicting results. Thus, the author seeks to verify and establish the relationship between financial literacy and financial inclusion, using evidence from South Africa.

CHAPTER THREE - RESEARCH METHODOLOGY

3.1 Introduction

A research study involves identifying a problem, gathering information and finding proper tools to investigate the problem. Thus, this chapter describes the research tools used to investigate the research problem and also provides a justification for the selection of the strategy used, noting the advantages and limitations thereof. This chapter is very critical because it entails developing an appropriate approach to provide quality and reliable research findings. The research methodology employed in this study is driven by the scope and aims of the topic of study and also the resources available for the research. Building on the literature reviewed, this chapter, therefore, discusses the research approach, design and strategy as well as data collection and data analysis methods that will be used to explore the research questions. The estimation model is also explained citing the reasons for its selection and the limitations of the model and how the limitations have been controlled. A description of the variables is also provided. Furthermore, in order to inspire confidence in the reader, the reliability and validity of the data are then discussed, and finally the limitations of the study are explained for consideration for future researches in the area of study.

3.2 Research Approach and Strategy

3.2.1 Research Approach

The purpose of this study is to establish the relationship between financial literacy and financial inclusion. To understand and establish this relationship, a key question was developed “ Does financial literacy affect use/ownership of financial products and services?” From this broad question two sub-questions were developed in order to maintain focus and choose the appropriate research approach and these questions are:

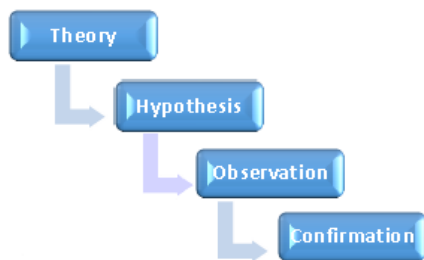
- a. What is the relationship between financial literacy and use/ownership of financial products and services?
- b. What are the prominent factors that affect financial literacy dimensions in South Africa?

Then more specific hypotheses were derived from the more general theories and empirical studies according to literature in the area of study. These hypotheses were then tested using a logical, scientific research approach. The results of this study aim to refine, improve and extend theory in the body of knowledge in the area of study. This approach fulfils the requirements of

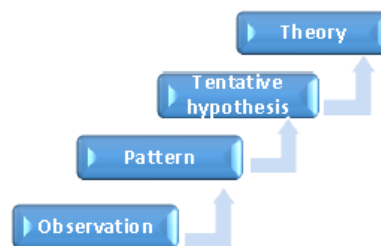
the quantitative deductive research approach. It is quantitative because it uses numerical data and mathematical models to analyse and validate data (Williams, 2007) and it is deductive because it aims at expanding on existing theory and not building a new theory and also takes a top-down approach rather than a bottom-up approach (Burney, 2008).

Figure 11: Research Approach Processes

Deductive Research Approach



Inductive Research Approach



Source: Burney (2008)

3.2.2 Research Strategy

This study adopts a quantitative descriptive research strategy since it seeks to establish a relationship between two quantifiable variables i.e., financial inclusion and financial literacy. The strategy is to employ a statistical test that is appropriate to establish the influence of financial literacy level on financial inclusion. This method confirms the objectivity of a hypothesis while the qualitative method explores and tries to better understand a phenomenon (Williams, 2007). Neither of the methods is absolute in nature, but for the purposes of this study, a quantitative approach is more appropriate because the data collected is numerical and the study seeks to confirm a correlation between two variables. A quantitative method is also appropriate for this study because the sample used is assumed to be representative of the population and thus statistics can be used to make generalisations about the results. Finally, the quantitative method reduces researchers subjectivity.

3.2.3 Research Design

The purpose of this research is to examine a relational effect aimed at answering specific research questions and testing specific hypotheses. The design of the research is to validate whether the change in the dependent variable, which is financial inclusion, is as a result of the corresponding change in the independent variable, which is financial literacy, and not as a

result of variables extraneous to this study³. This is called internal Validity. The author uses both elimination and inclusion measures to avoid unauthentic correlations and improve validity. Due to the lack of data and lack of relevance in this study, the author uses elimination to control the effect of the other determinants of financial inclusion and holds them constant, but uses inclusion by separately adding socio-demographic and economic variables to test their effect on financial inclusion, because of their well documented effect in literature on both financial inclusion and financial literacy.

The assumption underlying the purpose of this study is that there is a relationship between the independent and dependent variables and the study also assumes that the effect of the independent variables upon the dependent variable is measured at a given point in time or over a short period of time, and this fulfils the assumptions of a cross-sectional data analysis. Thus it is a cross sectional study unlike the time series analysis whereby the behaviour of one or more variables is traced over time. This cross-sectional study uses the Logistic Regression model and the Ordinary Least Squares (OLS) regression model. These models have been explained in section 3.5.1

3.3 Data Collection, Frequency and Choice of Data

3.3.1 Data Choice

This study uses data on financial inclusion indicators as described by the GPFi and the WBG as the dependent variables and financial literacy dimensions as defined by the OECD/INFE as the independent variables. The research team at the HSRC has adopted the same framework as the GPFi and the OECD and thus uses the same variables in their research work on financial literacy in South Africa. The dependent variables include ownership of banking products, investment and savings products, credit and loan products and insurance products. The choice of these variables is based on the fact that they are commonly used and easily understood indicators. In addition, these variables have been widely explained in literature and are generally accepted across the globe. The World Bank classifies the financial inclusion indicators selected for the purposes of this study as key indicators of financial inclusion. The independent variables include financial knowledge and understanding, financial control, financial planning, and product choice and awareness. Similarly, the financial literacy variables

³ Extraneous variables are those independent variables that the researcher does not intend to investigate but are known to have an effect on the dependent variables too.

chosen by the author are broadly accepted indicators and provide room for comparability between countries and also between results of different research studies done in the same and/or different countries. Both the dependent and independent variables have been fully described in section 3.3.1.1. The study will also use selected control variables, (socio-demographic and economic factors) to assess their effect on both financial inclusion and financial literacy.

This study is based on the studies of Zins et al. (2016), Rootman et al. (2014) and Mishi et al. (2012). The study of Rootman et al. (2014) uses financial knowledge, financial skills, financial confidence, financial information seeking and low financial inclusion as financial literacy variables and uses responsible spending behaviour as the financial inclusion variable. Banking and savings behaviour was used a both as financial inclusion measure and financial literacy score. The study only provides the statistics on individual profiles involved in the study without necessarily testing their influence on financial inclusion. For example, most of the respondents were females between ages of 30 to 39, but this does not explain whether being female increases or decreases the chances of being financially included.

Mishi et al. (2012) use financial literacy variables as the ability to manage money and the ability to read English, while financial inclusion as bank access that is ownership of a bank account. The description of financial inclusion as the ability to read English is highly subjective. The study of Mishi et al. (2012) tested the effects of socio-demographic and economic factors such as race, geographical location and employment status on financial inclusion, but not financial literacy.

Zins et al. (2016) use financial inclusion variables of use of formal accounts, savings, credit and independent variables of age, income and education. The objective of this study was to identify what influences the use of financial products/services.

This study builds on existing studies by using internationally and widely accepted indicators of financial inclusion and financial literacy dimensions to test the effect of financial literacy on financial inclusion. The study also tests the effect of socio-demographic and economic variables on both financial inclusion and financial literacy. This study will also examine the overall effect of financial literacy dimensions on overall financial inclusion. The data used is also nationally represented.

3.3.1.1 Description of the Variables

(a) Dependent Variables

Financial Inclusion, of which is the dependent variable in the model used for data analysis, is measured in terms access, usage and quality of financial services/products according to the GPFI. This study will focus on one of the access indicators and three of the usage indicators, which are the dependent variables, namely; ownership of a banking product; ownership of investment/savings products; ownership of credit/loan products; and ownership of insurance products. This study is focused on ownership of formal financial products and thus variables only apply to those owning a financial product at a financial institution such as a bank, credit union, cooperative, post office, microfinance institution and a mobile money account (Demirgüç-Kunt & Klapper, 2012; Demirgüç-Kunt, Klapper, Singer, & Oudheusden, 2015). See Appendix F for these products in the South African context. A thorough description to ensure an understanding of these variables has been provided in section 2.5.4.1 above.

(b) Independent Variables

The independent variables include financial knowledge, financial behaviour, financial attitude and financial awareness. The research team at HSRC developed a theoretical framework with four domains to explain these variables which include financial knowledge and understanding, financial control, financial planning, and product choice and awareness to represent financial knowledge, financial behaviour, financial attitude and financial awareness respectively.

Figure 12: Conceptual Framework for Measuring Financial Literacy



Source: HSRC

(i) Financial Knowledge and Understanding

According to the definition of the OECD, financial knowledge is to possess basic knowledge of key financial concepts. These key concepts include understanding some basic numeracy, the effects of inflation, interest paid on loans and interest received on deposits, compound interest, risk diversification and the risk of high return investments.

(ii) Financial Control

Financial control, which is called financial behaviour according to the OECD, assesses an individual's behaviour in daily financial decision-making which involves budgeting, paying bills on time, thinking before making a purchase, a preference for saving over spending, borrowing and saving to make ends meet.

(iii) Financial Planning

Questions on financial planning are set to test the disposition and preferences for individuals. This assesses individuals' attitudes towards money and planning for the future. The questions are focused on financial goal setting, emergency funds and a preference to save for the long term.

(iv) Product Choice and Awareness

Product choice, which is called financial awareness according to the OECD, goes beyond an individual's being aware of and holding any financial products such as credit and loan, investment and saving, insurance policies, to the point of understanding their product needs and doing a proper research before making a choice. For the purposes of this study, awareness of banking product is used as the product choice variable in the model. The studies of Fanta et al., (2016) find that in some countries awareness level does not match account penetration and they also find that having a financial product does not necessarily mean understanding the product. However they concluded that more knowledge about the product would increase product uptake.

Each financial literacy domain is composed of various attributes and a question was set to represent each attribute and was asked to the interviewee to capture the respondents' knowledge of the attribute (see Appendix H) and a score is determined based on the number of correct responses.⁴ For the purposes of this study an individual is considered financially literate if

⁴ For further reading on the variables, the questions that are asked and how the scores are reached please read Atkinson, A. and F. Messy (2012), "Measuring Financial Literacy: Results of the OECD / International Network on Financial Education (INFE) Pilot Study", OECD Working Papers on Finance, Insurance and Private

he/she possesses any of the financial literacy variables, but a higher score is given to those who possess multiple variables.

Figure 13: Overview of Financial Literacy Scores



Source: HSRC

3.3.1.2 The relationship between the independent variables

Agarwalla et al. (2013) observed a highly significant positive relationship between financial knowledge and behaviour and a significant negative relationship between financial behaviour and financial attitude, and yet found no relationship between financial knowledge and financial attitude. Atkinson and Messy (2012) also found similar results between the variables, in that a person with more financial knowledge is more likely to show positive financial behaviours, and similarly a person with positive attitudes towards the longer term is more likely to have more positive behaviour than those individuals with a preference for short term. This means that negative attitude to long term is negatively related to positive behaviour and negative attitude to long term is positively related to negative behaviour. The conclusions in their studies did

Pensions, No. 15, OECD Publishing. And can also read Roberts, B., Struwig, J., and Gordon, S (2014). *Financial Literacy in South Africa: Results from the 2013 South African Social Attitudes Survey round*. Report prepared by the Human Sciences Research Council on behalf of the Financial Services Board. Pretoria: Financial Services Board.

not cover financial awareness, but one would expect to find some correlation between financial behaviour and awareness and no relation with either knowledge or attitudes. The presence of dependency among independent variables in this study will be checked and adjusted accordingly only if considered to be too high to affect the regression results.

3.3.1.3. Explaining the variations by socio-demographic and economic factors.

Both financial inclusion and financial literacy are affected by demographic and economic characteristics. Most studies have found that socio-demographic and economic factors have varying effects on both dimensions of financial literacy and financial inclusion. Zins et al. (2016) state that age, income, and education have a significant non-linear relationship with owning an account, using the account for formal savings as well as to access formal credit. They find that the likelihood of being financially included increases with age, increase in income and higher education. In line with the studies of Allen et al. (2016) and Fungáčová et al. (2014), Zins et al. (2016) also find that being a woman reduces the chances of being financially included. However at a global level, Allen et al. (2016) did not find a significant relationship between gender and being financially included. This finding was also observed in South Africa. The studies of Wentzel, Diatha, and Yadavalli (2016) reveal that education, income, age, home language and number of dependants play a significant role in financial inclusion in South Africa, while age and location are insignificant. FinScope results actually show that females are more financially included than men in South Africa and that inclusion is also higher among whites and those living in urban areas.

In terms of financial literacy, Atkinson et al. (2012) contends that women have lower financial literacy levels compared to men. In their studies undertaken in 14 countries Atkinson et al. (2012) assert that in most of the countries women have lower levels of financial knowledge and financial behaviour. Only a few show similar proportion of men and women and very few show women with a higher score than men. Unlike financial knowledge and financial behaviour, women have a more positive attitude towards long term than men. Except for South Africa, gender seems to have little variation. But overall a combined measure of the financial literacy dimensions indicates that men have a higher score than women. These authors also observed a significant variation by income and age. Fanta et al. (2016) asserts that age has an inverted U shape; the middle aged having high levels of financial literacy than the older and younger individuals. Respondents with high income are more likely to have more scores and those with higher education more likely to exhibit positive behaviour and attitude as well as high levels of

knowledge (Atkinson et al., 2012). Similarly Thaler (2013) discovered that financial literacy is closely correlated with higher education, while Agarwalla et al. (2013) finds that high education does not translate into an individual being financially literate. Nanziri et al. (2016) assert that demographic characteristics contribute up to 10% of the financial literacy differences among individuals in South Africa. The studies of Nanziri et al. (2016) note that women, black South Africans, the less educated and youth between 18-29 years of age score below the average scores. They find that financial literacy scores increase from age 30 and decrease after age of 60, confirming the findings of Fanta et al. (2016) in the SADC region and they also find that financial literacy increase with income and education, but decreases among those living in the rural areas. Rousseau et al. (2016) find similar results on gender and education but observe with education that those with high education are more aware of financial planning but are less aware of financial behaviour and that they have high credit card balances. The OECD/INFE asserts that gender, age, education and income are the key determinants of financial literacy.

Understanding the role of socio-demographic and economic factors in any research area helps to identify the gaps and helps policy-makers allocate resources appropriately. Therefore for the purposes of this study and considering the data available for analysis, only two socio-demographic factors (age, and geographical location) and two economic factors (education and income-living standard measure) will be used to test the effect of individual characteristics on financial inclusion as well as financial literacy. Refer to Appendix I for a representation of each variable.

- Age: The respondents involved in the collection of data on financial inclusion were adults above 15 years of age and above 16 years of age for financial literacy data. From the literature reviewed, the middle-aged adults are more financially literate and are thus more financially included than the younger and older aged.
- Geographical location: In the context of this study geographical location is classified as urban formal, urban informal, traditional authority areas and rural formal. Location of residence plays a role due to accessibility to facilities such as the financial institutions themselves, as well as facilities that can enhance financial inclusion and/or financial literacy such as education. It is expected that those living in easily accessible areas should be more exposed to financial products and services and also should have a better understanding of aspects of financial literacy.

- Education Attainment: The literature shows that the more highly educated people are, the more likely they are to have a better understanding of financial literacy concepts and also be financially included.
- Income (Living Standard Measure): Spending behaviours are attributed to the level of wealth that an individual holds. This suggest that, the more the income one earns and or generates, the more likely he/she is to participate in the financial market and to show hence more interest in understanding the various aspects of financial literacy.

Figure 14: Summary of All the Variables

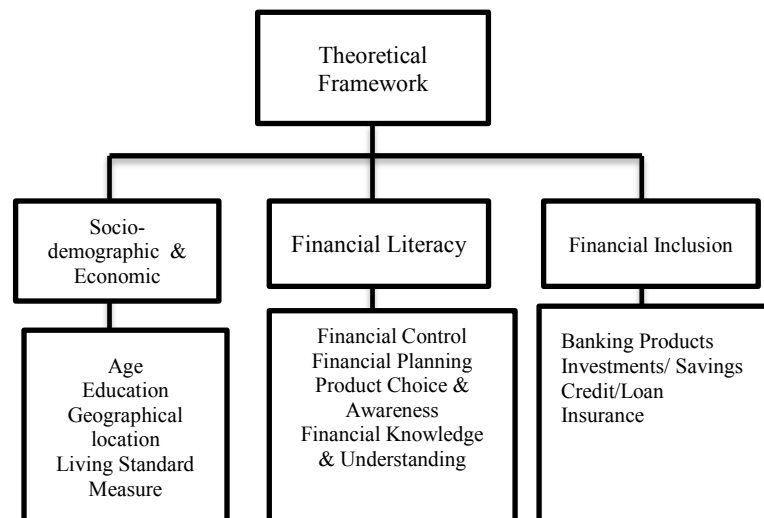


Table 1: Data Definition and Sources

Variable	Description	Source
Dependent Variable	An adult is financially included if he/she	WBG Global
Financial Inclusion	holds any of the following formal products: banking products (ownership of an account) investment/savings credit/loan insurance	Findex Database
Independent Variables		SASAS-HSRC
Financial Literacy	An adult is considered to be financially literate if he/she possesses any of the financial literacy variables but a higher score is given to those who possess multiple variables	

Note: WBG= World Bank Group; SASAS=South African Social Attitudes Surveys;
HSRC=Human Sciences Research Council

3.3.2 Data Frequency

The analysis uses data from 2012 due to the availability and reliability of data but references wherever necessary will be made to 2011, 2013 and 2015 data. The topic of financial literacy and financial inclusion is multidimensional and different institutions use different definitions to describe them. As such researchers have also used different variables for the same objective leading to different results. However, in the wake of the 2008 Credit Crunch, financial literacy and financial inclusion gained top priority by policy-makers across the globe. In 2010, at the G20 summit in Seoul, financial inclusion was acknowledged to be a key tool to global development (GPFI, 2012). Since these developments, global efforts have been put in place to improve data on financial literacy and financial inclusion. This period corresponds with the period selected for this study thus makes the data easily available and more reliable. Below is a table showing recent developments that have taken place to enhance data availability and usage on financial inclusion.

Table 2: Financial Literacy and Financial Inclusion Databases

Organisation	Outcome	Objective
WBG	Global Findex Database and Financial inclusion Indicators	In collaboration with the Gallup World Poll, the WBG developed a database on financial literacy funded by the Bill and Melinda Gates Foundation to provide comprehensive information on individuals' behaviour in regards to saving, borrowing, making payments and managing risks from the demand side perspective of financial inclusion. The first indicators were captured in 2011 then the database was released in 2012. (Ardic, Chen, & Latortue, 2012)
IMF	Financial Access Survey	The Financial Access Survey was already being conducted by IMF to collect data of individuals' accessibility to basic financial services, but in 2012, the project was enhanced to distinguish between SMEs, individual households and different financial institutions. The indicators focus on the supply side of financial inclusion (Ardic et al., 2012).
OECD	INFE and the Toolkit on measuring financial literacy	The INFE was created to focus on financial literacy and financial education policy and a measuring instrument; a questionnaire was developed for global use to collect data on financial literacy and financial inclusion. The first pilot study was conducted in 2010 (Atkinson & Messy, 2011).
GPFI	Financial inclusion Indicators	In 2012 at the G20 Los Cabos Summit, a set of financial inclusion indicators was endorsed and additional sets were endorsed in 2013 and 2016 to reflect the new developments in the area of financial inclusion for example, digital financial services (GPFI, n.d.).
FSB (South Africa)	Framework for measuring financial literacy	In 2010 the FSB in South Africa commissioned the HSRC to conduct a pilot study on financial literacy in order to provide information to consumers to reduce irresponsible behaviour to increase access to financial services to all South Africans and a research team called SASAS was established. Due to the satisfactory results of the pilot study, a national baseline study has been conducted each year since 2011 (Roberts et al., 2014).

As a result of the annual national baseline studies commissioned by the South African Financial Services Board, South Africa is regarded as having a rich database on financial literacy in the

Sub Saharan region and South Africa was also the first country to adopt the OCED/INFE framework on financial literacy surveys thus qualifies to be used as a benchmark for financial literacy studies in the region (Roberts et al., 2014).

3.3.3 Data Collection

The study employs secondary data and uses context analysis to extrapolate the actual relevant data from the intended documents. The data used is from the HRSC database prepared by HSRC on behalf of the Financial Services Board. The analysis will focus on the 2012 data because this data is regarded reliable and relevant for this study. The 2012 data has all the relevant select variables. Data for 2011, 2013 and 2015 will only be used to support the findings of the analysis of the 2012 data and to enrich the analysis. No detailed analysis for these years will be done since the years are only one year apart and thus, the author does not expect any significant changes in the results by including each year.

3.4 Sampling

This study employed secondary data thus the researcher has used no sampling technique. To assess the relationship between financial literacy and financial inclusion four-year period data from South Africa is analysed. This represents a large enough data size to draw conclusions and extrapolate to other economic environments. The data used was obtained from financial literacy surveys conducted by the SASAS, the research team at HSRC in South Africa on an annual basis. The sample is a national representative sample of adults aged from 16 and above. The SASAS surveys aim to investigate attitudes, beliefs, behaviour patterns and values of individuals in South Africa. The selected households were randomly chosen. Refer to Appendix G for concepts underlying financial literacy according to the HSRC.

3.5 Data Analysis Methods

To analyse the relationship between financial inclusion variables and financial literacy and socio-demographic and economic variables, a Logistic regression model and an Ordinary Least Squares (OLS) regression model have been estimated in line with the studies of Zins et al. (2016), Rootman et al. (2014) and Mishi et al. (2012).

The studies of Mishi et al. (2012) used the quantile regression and OLS regression models. The quantile approach is used to estimate percentiles of the distribution or calculate the upper or lower outcomes and is used when the conditions of linear regression do not apply. This study

seeks to establish the influence of the independent variable over the dependent variable, and thus does not use the quantile approach. In addition, this model has been less frequently applied in this area of study as well as other social sciences studies.

The studies of Zins et al. (2016) and Rootman et al. (2014) use the probit model and the multiple regression models respectively. Both these models and the logistic model are Generalised Linear Models (GLM) and there is no significant difference in the results. The author of this study uses the logistic regression model to test the effect of socio-demographic and economic variables on financial literacy as well as the effect of the same select socio-demographic and economic variables on financial inclusion for a number of reasons. The dependent variable is assumed to be binary, financially literate or not and financially included or not. In addition, the logistic distribution is a common distribution in statistics. The distributional shape is similar to the normal distribution, but with heavier tails and higher peaks. Its functions (probability density functions, cumulative distribution function and quantile function) are simple and easy to manipulate. The OLS model is also used in this study to test the effect of financial literacy on financial inclusion because the logistic model failed to converge. The OLS model presents various problems when used with a binary outcome result, and thus it is only used when a linear relationship is assumed and when the logistic model fails to converge.

The logistic and OLS regression models have been widely used in social sciences and this area of study. In addition to studies mentioned above, the table below provides an overview of researches in the area of study that used the Logistic regression models and the OLS regression model to analyse data.

Table 3: Studies That Employed The Logistic and The OLS Regression Models

Literature Source	Objective of Study
Logistic Model (Logit/Probit)	
Allen et al. (2016)	To explore the individual and country characteristics associated with financial inclusion and the policies that are effective among those that are financially included.
Ghosh & Vinod, (2016)	To examine the effect of gender on financial inclusion and constrains of this relationship.
Potrich et al (2015)	To analyse the influence of socio-demographic and economic variables on financial literacy
Wachira et al (2015)	To establish the impact of financial literacy on access to financial services in Kenya.
Beck & Brown, (2011)	To explore the use of banking services to household characteristics, bank ownership, deposit insurance and creditor protection from 28 transition countries (emerging markets) for the period of 2006 to 2010.
OLS Model	
Makina et al. (2015)	To estimate effect of access to credit on firm size.
Demirgüç-Kunt & Klapper, (2012)	To provide an analysis of the Global Financial Inclusion (Global Findex) database, a new set of indicators that measure how adults save, borrow, make payments and manage risks.
Kairiza, Kiprono, & Magadzire, (2016)	To investigate the gender gap in financial inclusion using data from Zimbabwe.
Allen et al. (2014)	To investigate the African financial development and financial inclusion gaps relative to other peer developing countries.
Ardic et al. (2011)	To analyse the state of access to financial services and the state of financial inclusion mandates around the world.
Mishi et al. (2012)	To assess the impact of financial literacy programmes in optimising financial inclusion in South Africa.

3.5.1 The Estimation Models

This study employs the Logistic regression to estimate the influence of socio-demographic and economic variables on financial literacy and financial inclusion. The OLS model has been estimated to test the influence of financial literacy on financial inclusion since dependent variables are not binary and the parameter estimates could not converge using the logistic model. STATA software and PYTHON software have been used to analyse the data.

a) The Logistic Model

The Logistic model is one of the basic and simplest and most commonly used methods of regression. The cumulative distribution function of the logistic distribution is known as the logit function and is applied in logistic regression. There are other applications that use logistic regression, such as neural networks, growth and propensity models. This study employs the binomial logistic regression. With this regression the dependent variable is categorical. The output takes the form of 0 or 1 (binary) For example, financially included/not or financially literate/not. The model estimates the likelihood of falling into a certain level of the categorical response given a set of indicators. The model also estimates the odds of an instance belonging to one group compared to those in a reference group. Logistic regression can be adapted to situations where the output is more than two categorical variables and this regression is called multinomial regression. The independent variables need not be continuous. They can be mixed which is to say continuous or discrete. The discrete variables are numerically coded as 0 or 1. The variable that takes the value of zero is then the default value and output is read relative to the default variable. Parameters are estimated for each variable in the model. Unlike the simple regression models, coefficients in the logistic regression model have new interpretation based on log odds or log odds ratios. There are various estimation methods that can be applied. Maximum likelihood estimation is the most common.

The aim of the first hypothesis in this study is to describe how financial literacy varies according to individual attributes of age, education, living standard measure and geographical location. The independent variable in this analysis is categorical hence the use of the binomial regression model. Therefore, using the logistic model in this analysis estimates the chances of being financially literate when the individual has certain socio-demographic and economic attributes as compared to those reference categories for each respective individual attribute as indicated in Table 4 below.

The theory about the logistic model is presented in a mathematical equation as shown below:

$$y_i = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n + u_i \quad (1.0)$$

Where:

y_i = Observed response of the i th adult who is either financially literate or not.

Equation (1.0) above predicts the probability of an individual adult in South Africa being financially literate (y_i) given a set of variables (x_1, x_2, \dots, x_n), which are exogenous to the individual adult. Below is the mathematical representation:

$$P(y_i = 1) \quad (1.1)$$

$$\theta = 1 - P(y_i = 0) \quad (1.2)$$

Where:

$y_i = 1$, if an adult is financially literate; and

$y_i = 0$, if an adult is not financially literate.

Since the dependent variable y_i is binary then the relationship between the dependent variable and the independent variable is non-linear. This relationship is represented as a logistic function as shown below:

$$\theta = x = \frac{e^{(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n)}}{1 + e^{(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n)}} \quad (1.3)$$

Where:

The logit expression of equation (1.3) is written as:

$$\text{logit} [\theta (x)] = \log \left[\frac{\theta(x)}{1-\theta(x)} \right] = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n \quad (1.4)$$

β_0 is the constant term representing the country's fixed effects on financial literacy and (β_1, β_2, \dots) are the coefficients of the regressors (x_1, x_2, \dots), such as age, education, living standard measure and geographical location. Equation (1.4) leads to the estimation model of this study as:

$$\log \left[\frac{fl(x)}{1-fl(x)} \right] = fl_i \quad (1.5)$$

Hence:

$$fl_i = \beta_0 + \beta_1 Age_1 + \beta_2 Edu_2 + \beta_3 LSM_3 + \beta_4 Geotype_4 + u \quad (1.6)$$

Where:

fl_i represents the financial literacy level of an individual adult in South Africa, Age is the age of an individual respondent, Edu is the educational level of a respondent, LSM is the monthly income earned by an individual respondent, and Geotype is the geographical location where the respondent lives.

Due to the well-documented effect of individual characteristics on financial inclusion, in addition to the analysis above, this study will also test the influence of the select individual characteristics on financial inclusion using the logistic model explained in section 3.5.1(a) above. This leads to the logistic equation as:

$$Fl_i = \beta_0 + \beta_1 Age_1 + \beta_2 Edu_2 + \beta_3 LSM_3 + \beta_4 Geotype_4 + u_i$$

Where:

Fl_i represents overall financial inclusion of an individual adult in South Africa, Age is the age of an individual respondent, Edu is the educational level of a respondent, LSM is the monthly income earned by an individual respondent, Geotype is the geographical location where the respondent lives.

Table 4: Classification of independent variables in the logistic model

	Definition of Independent Variables
	Age
Less than 20	Reference category
20-29	Dummy variable equal to one if respondent is aged between 20-29, zero otherwise
30-39	Dummy variable equal to one if respondent is aged between 30-39, zero otherwise
40-59	Dummy variable equal to one if respondent is aged between 40-59, zero otherwise
60-69	Dummy variable equal to one if respondent is aged between 60-69, zero otherwise
Above 69	Dummy variable equal to one if respondent is above 69 years old, zero otherwise
	Education
No Schooling	Reference category
Primary education	Dummy variable equal to one if individual has completed primary school or less, zero otherwise
Some secondary	Dummy variable equal to one if individual has some secondary education, zero otherwise
Matric level	Dummy variable equal to one if individual has completed secondary education, zero otherwise
Tertiary education	Dummy variable equal to one if individual has completed tertiary education or more, zero otherwise

	<i>Living Standard Measure</i>
Low	Reference category
Medium	Dummy variable equal to one if income is in the medium category, zero otherwise
High	Dummy variable equal to one if income is in the high category, zero otherwise
	<i>Geographical Location</i>
Rural Traditional Authority	Reference category
Rural Formal	Dummy variable equal to one if individual lives in a rural formal area, zero otherwise
Urban Formal	Dummy variable equal to one if individual lives in a urban formal area, zero otherwise
Urban Informal	Dummy variable equal to one if individual lives in an urban informal area, zero otherwise

b) The OLS Model

The OLS model also commonly known as linear regressions is usually used to model relationships between a single variable y usually referred to as the dependent variable and one or more explanatory or independent variables x_1, \dots, x_n . When $n=1$, we have a simple linear regression, while if $n > 1$ we have a multiple linear regression. The aim is to model the unknown relationship between dependent and independent variables by fitting a linear equation to observed data. The OLS model is applied to test the second hypothesis since the dependent variable is not binary. It is rather based on number of financial products that the respondent holds and also the logistic model could not converge. The use of the OLS model to test the second hypothesis is also valid since the variables are assumed to have a linear relationship.

The OLS model takes various forms of correlation, multiple regression and ANOVA. The model aims at closely fitting a function with data by minimising the sum of squared errors from the data. The model focuses on measuring accuracy. When the assumptions are met, the model can be a better fit than other regression models. The model is very familiar and its parametric form makes it relatively easy to interpret. The model seeks to explain the variation in the dependent variable using the variation in the independent variable. It is impossible to study a quantity that does not vary and therefore variation is very important when it comes to applying the OLS model. The model measures a linear relationship and is known to have been widely used in social sciences (Pohlman & Leitner, 2003). Mathematically, the OLS model estimates the unknown parameters in a linear regression model by minimising the sum of the squares of the differences between the observed dependent variable in the given data set and those predicted in the linear function. The OLS model is derived from a number of assumptions of a simple linear regression model and the theory about the OLS model is summarised in a mathematical equation as presented below:

$$y = \beta_0 + \beta_1 x + u \quad (2.0)$$

Where:

y is the dependent variable which is a linear function of the regressor x (also called the independent variable), and (u) is the error term also known as the residual that represents factors other than x , which also affect y but are not included in the model. When the factors in (u) are held fixed, the change in (u) is zero, which gives x a linear effect on y . This is presented in a mathematical equation as shown below:

$$\Delta y = \beta_1 \Delta x; \text{ if } \Delta u = 0 \quad (2.1)$$

Therefore:

β_1 represents the slope parameter between y and x , also called the coefficient of the regressor x . Mathematically, the expected (u) value as assumed in equation (2.1) can be written as:

$$E(u) = 0 \quad (2.2)$$

However the value of μ does not depend on the value of x , hence:

$$E(u|x) = E[u] = 0 \quad (2.3)$$

The assumption made in equation (2.3) implies that for any given value of x , the average of the unobserved effects is the same and therefore must be equal to the average value of (u) in the population. Hence equations (2.2) and (2.3) give rise to a zero conditional mean assumption of the error term, which ensures that the regression coefficients (β_1) are unbiased. This condition only holds if the regressor (x) is independent of the unobserved effects in (u) . However, when the unobserved effects play a role in a model, then the condition does not hold. This gives the coefficient β_1 another important representation that is, expected value of y conditional on x .

Thus using $E(u|x) = 0$ gives:

$$E(y|x) = \beta_0 + \beta_1 x \quad (2.4)$$

Equation (2.4) above means that the one unit increase in x changes the expected value of y by the amount β_1 . Based on this equation (2.4), when equation (2.3) is true then, the dependent variable y breaks into two components as set out below:

$\beta_0 + \beta_1 x$, which is part of y explained by x :

and

u , which is part of y not explained by x .

To estimate the constant term β_0 and the coefficient term β_1 , a random sample of n variables has to be drawn from the population, which is represented as:

$$\{(x_i, y_i): i = 1, \dots, n\}$$

In mathematical terms, for each i , this is written as:

$$y_i = \beta_0 + \beta_1 x_i + u_i \quad (2.5)$$

Where:

u_i represents the error term for observation i .

Using the assumptions in (2.4) and (2.6), u is uncorrelated with x_1 , hence u has a zero expected value, and the covariance between x and u is also zero. This leads to mathematical equations, which are written as:

$$E(u) = 0; \quad (2.6)$$

and

$$Cov(x, y) = E(xu) = 0. \quad (2.7)$$

Replacing the equations in (2.6) and (2.7) with observable variables x and y and also the unknown parameters β_0 and β_1 , equation (2.6) and (2.7) can be written as:

$$E(y - \beta_0 - \beta_1 x) = 0; \quad (2.8)$$

and

$$E[x(y - \beta_0 - \beta_1 x)] = 0. \quad (2.9)$$

To find the unknown parameters in equation (2.8) and (2.9), the sample counterparts need to be solved. As introduced by Pafnuty Chebyshev in 1887, the method of moments approach to estimation represented is employed to estimate the unknown parameters. The estimators from the method of moments approach are regarded to be biased, especially under weak assumptions. Hence this approach was later superseded by the Fisher's method of maximum likelihood because the maximum likelihood estimators are regarded as having a higher probability of being close to the quantities to be estimated and are more often unbiased

(Wikipedia, n.d.). Nevertheless, The method of moments approach is still used as the first approximation to the solutions of the likelihood equations thus helping to find the more appropriate estimates. The equations are illustrated as set out below:

$$n^{-1} \sum_{i=1}^n (y_i - \hat{\beta}_0 - \hat{\beta}_1 x_i) = 0; \quad (2.10)$$

and

$$n^{-1} \sum_{i=1}^n x_i (y_i - \hat{\beta}_0 - \hat{\beta}_1 x_i) = 0. \quad (2.11)$$

Using basic properties of summation operator equation (2.10) can be written as:

$$\bar{y} = \hat{\beta}_0 + \hat{\beta}_1 \bar{x} \quad (2.12)$$

Where:

$\bar{y} = n^{-1} \sum_{i=1}^n y_i$ is the sample average of the y_i ; and

$\bar{x} = n^{-1} \sum_{i=1}^n x_i$ is the sample average of x_1 .

Rearranging equation (2.12) gives:

$$\hat{\beta}_0 = \bar{y} - \hat{\beta}_1 \bar{x} \quad (2.13)$$

The value of $\hat{\beta}_0$ can only be found if the slope estimate $\hat{\beta}_1$ is known. Dropping the n^{-1} in equation (2.11) and substituting $\hat{\beta}_0$ with the right hand side of equation (2.13) yields:

$$\sum_{i=1}^n x_i \left[y_i - \left(\bar{y} - \hat{\beta}_1 \bar{x} \right) - \hat{\beta}_1 x_i \right] = 0,$$

Which, upon rearranging, gives

$$\sum_{i=1}^n x_i (y_i - \bar{y}) = \hat{\beta}_1 \sum_{i=1}^n x_i (x_i - \bar{x}).$$

According to the basic properties of summation operator, the two sides of the equation above can also be written as:

$$\sum_{i=1}^n x_i (y_i - \bar{y}) = \sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y});$$

and

$$\sum_{i=1}^n x_i (x_i - \bar{x}) = \sum_{i=1}^n (x_i - \bar{x})^2.$$

To estimate the slope $\hat{\beta}_1$, an assumption that the sample variance of x is zero is made. Mathematically this is written as:

$$\sum_{i=1}^n (x_i - \bar{x})^2 > 0, \tag{2.14}$$

Hence, the estimated slope is presented as:

$$\hat{\beta}_1 = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sum_{i=1}^n (x_i - \bar{x})^2} \tag{2.15}$$

The estimates made in equation (2.13) and (2.15) are called the ordinary least squares estimates of β_0 and β_1 . Thus for any $\hat{\beta}_0$ and $\hat{\beta}_1$, a fitted value for y when $x = x_1$ is defined as:

$$\hat{y}_i = \hat{\beta}_0 + \hat{\beta}_1 x_i \quad (2.16)$$

Each observation in a sample has a fitted value and the residual for observation i , is the difference between the actual y_i and its fitted value. This is written as:

$$\hat{u}_i = y_i - \hat{y}_i,$$

and substituting \hat{y}_i with equation (2.16) gives:

$$\hat{u}_i = y_i - \hat{\beta}_0 - \hat{\beta}_1 x_i. \quad (2.17)$$

However, a sample may have n residuals and to reach at the OLS regression line the sum of squared residuals is minimised using $\hat{\beta}_0$ and $\hat{\beta}_1$. The statistical theory of estimators that minimise the absolute residuals is very complex, while the sum of squared residuals is easy and also cancels out the residuals with opposite signs, hence the motivation for its selection. Using equation (2.17) to sum and square the residuals gives a mathematical equation as:

$$\sum_{i=1}^n \hat{u}_i^2 = \sum_{i=1}^n \left(y_i - \hat{\beta}_0 - \hat{\beta}_1 x_i \right)^2 \quad (2.18)$$

The term ordinary least squares derives from the fact that the estimates minimise the sum of the squared residuals and this leads to an OLS regression line as:

$$\hat{y} = \hat{\beta}_0 + \hat{\beta}_1 x_i + \hat{u}_i \quad (2.19)$$

The notation \hat{y} means that values obtained from equation (2.20) are only estimates. This equation leads to the estimation model employed in this study to analyse the effect of financial literacy dimensions on financial inclusion indicators, as well as to analyse the effect of socio-demographic and economic variables on financial inclusion. Hence the estimation model below:

H₂: Financial literacy is positively related to use/ownership of financial products and services in South Africa.

$$FI_i = \beta_0 + \beta_1 FL_1 + u_i \quad (2.20)$$

FI_i is overall financial inclusion, FL_1 is overall financial literacy score and μ is the error term that represents external effects on dependent variable that are not included in the model.

This model in (2.20) is employed further to analyse the effect of financial literacy dimensions on specific financial inclusion indicators as follows:

- $H_{2(i)}$: Use/ownership of banking products is influenced by the select financial literacy variables (financial knowledge and understanding, financial planning, financial control, and product choice and awareness).

$$O_i = \beta_0 + \beta_1 FinK_1 + \beta_2 FinC_2 + \beta_3 FinP_3 + \beta_4 FinW_4 + u_i \quad (2.21)$$

- $H_{2(ii)}$: Use/ownership of formal investment/savings products is influenced by the select financial literacy variables (financial knowledge and understanding, financial planning, financial control, and product choice and awareness).

$$S_i = \beta_0 + \beta_1 FinK_1 + \beta_2 FinC_2 + \beta_3 FinP_3 + \beta_4 FinW_4 + u_i \quad (2.22)$$

- $H_{2(iii)}$: Use/ownership of formal credit/loan products is influenced by the select financial literacy variables (financial knowledge and understanding, financial planning, financial control, and product choice and awareness).

$$L_i = \beta_0 + \beta_1 FinK_1 + \beta_2 FinC_2 + \beta_3 FinP_3 + \beta_4 FinW_4 + u_i \quad (2.23)$$

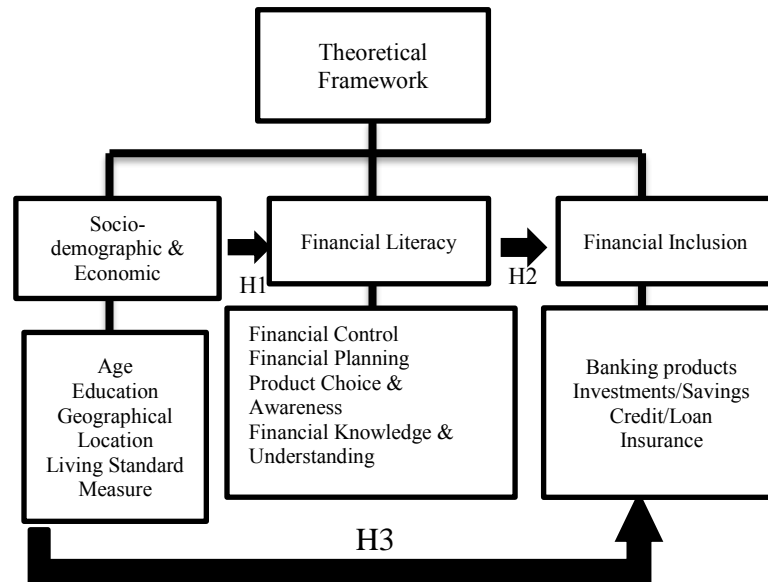
- $H_{2(iv)}$: Use/ownership of formal insurance products is influenced by the select financial literacy variables (financial knowledge and understanding, financial planning, financial control, and product choice and awareness).

$$I_i = \beta_0 + \beta_1 \text{FinK}_1 + \beta_2 \text{FinC}_2 + \beta_3 \text{FinP}_3 + \beta_4 \text{FinW}_4 + u_i \quad (2.24)$$

Where (for equations 2.22 to 2.24):

- *O= Holding banking product/(s)*
- *S= Holding formal investment or savings product/(s)*
- *L=Holding formal credit/loan product/(s)*
- *I= Holding formal insurance product/(s)*
- *FinK= Financial Knowledge and Understanding*
- *FinC= Financial Control*
- *FinP= Financial Planning*
- *FinW= Product Choice and Awareness*
- *Age=Age of the respondent*
- *Edu= Education attainment of the respondent*
- *LMS= Living Standard Measure (Monthly Income) of the respondent*
- *Geotype=Geographical location of the respondent*
- *β_0 = The country's fixed effect on financial inclusion*
- *u_i = represents the varying country effects on financial inclusion not presented in the model*

Figure 15: Summary of the Hypotheses



In addition to the analysis above, the study will perform a correlation test to check the level of dependency among the independent variables. Furthermore, a descriptive analysis of the relationship of each of the select socio-demographic and economic variables and each of the financial literacy domains (financial control, financial planning, financial knowledge and product choice) and financial inclusion variable (banking products, formal investments/savings, formal credit/loan, formal insurance) will be made.

3.5.2 The Assumptions and Limitations of the models

The OLS model works better under the following assumptions:

- The linear regression model is linear in parameters.
- Observations were randomly selected.
- There is conditional mean of zero.
- There is no multicollinearity within the independent variables.

However, even when all the assumptions are satisfied, the model is subject to certain limitations.

- It can perform badly when extreme outliers exist in the data.
- There is non-linearity between the dependent and explanatory variables.
- There are a number of independent variables.
- There is dependency among the explanatory variables.

The logistic model does not assume linearity, normality, homoscedasticity and measurement level of the explanatory variables like the OLS and other linear regression models. The logistic model applies the non-linear log transformation to the predicted odds ratios, and thus has the ability to handle various types of relationships. Homoscedasticity is not required for the explanatory variables and neither the variables nor residuals require to be normally distributed and metric in nature, as the model can handle both ordinal and nominal data. However, the binary logistic model is based on a number of assumptions and these can be regarded as the limitations in using the model. These assumptions include:

- The dependent variable has to be correctly coded; the factor of 1 should represent the desired outcome.
- The model should be correctly fitted. Over-fitting or under-fitting can lead to undesired results thus all meaningful variables and correct variables should be included in the model.
- There must be no multicollinearity among the independent variables
- The independent variable should be linear to the log odd.
- The model requires a large sample size.

The main objective of the study is to assess whether financial literacy affects the use/ownership of financial products/services, and thus the focus model of this study is the OLS model that is estimated to measure the second hypothesis, which is linked to the main objective of the study.

3.5.3 Control for Limitations

(a) The OLS Model

In consideration of the limitations that the OLS model is subjected to, a number of functions have been done to reduce the effect of the limitation on the results of the analysis. The data was checked for extreme outliers in the responses however the responses were as expected. Secondly, for the second hypothesis the relationship between the variables is assumed to be linear. The number of variables in the model is limited to the objective of the study and also the availability of data on measurable indicators. Lastly, dependency among the variables is checked using the correlation matrix and adjustments to the model are done only if the correlation between two variables is considered to be so high that it can affect the results of the regression analysis. The independent variables used in the model have a weak positive relationship between each other thus no adjustments are made.

(b) The Logistic Model

Unlike the OLS model, the main limitation for the logistic model is dependency among independent variables. However the logistic model is used to test the secondary hypothesis whose results are supported by a thorough descriptive analysis, and thus no further action is required.

3.6 Research Reliability and Validity

The study will apply secondary data obtained from the Human Sciences Resource Council in South Africa, which employs the OECD/INFE approach. The theoretical framework adopted by HSRC, the research team that was commissioned by the Financial Services Board in South Africa to conduct a national baseline survey on financial literacy, depends on questions from the OECD/INFE guidelines. The questions have been tested for analytics soundness, measurability and relevance to the specific variable being measured and the relationship between these variables (Atkinson et al., 2011). This ensures that the data used can be easily compared at an international level as well as across over time. The Logistic regression model will be used to analyse the data collected from the HSRC to validate the assumptions of this study.

All relevant research ethics, as depicted in the UCT Code of Ethics for Research, will be observed through out the study.

3.7 Limitations of the study

This study is limited to the following issues:

- Complexity of the topic (Nature of data): The topic of financial literacy is multi-dimensional and different institutions have used different variables to measure it. This study will focus only on the financial literacy dimensions according to OECD and the HSRC of South Africa and the study is limited to the key four indicators of financial inclusion (see Appendix B for full list of financial inclusion indicators).
- Availability of data: This study does not consider the impact of other determinants of financial inclusion due to the lack of availability of reliable data and also relevance for the study. The results of this study will also be affected by number of periods covered due to inadequate data being available for analysis. Data available is for five consecutive years between 2011 and 2015 and the author believes there will be no significant differences in the results for each of these

years done separately. Even using pooled data would not make any significant differences. As a result the study mainly focuses on one year, which has data with all relevant select variables.

- **Quality of data:** There is no way of the researcher knowing that the data collected is 100% valid since the data was collected by a different organisation other than the author of this paper.
- **Measurement and recording:** The data used was obtained from financial literacy surveys of a well-known research centre in South Africa, the HSRC. However, gaps may still exist in collection and recording of the data.

3.8 Summary and Conclusions

This chapter has described the research approach of the study as a quantitative deductive approach and the research strategy as quantitative descriptive that employs a statistical test to test the relationship between two quantifiable variables. This section has also described the intended analysis as a cross-sectional study. The source and type of data collected for analysis have been explained including the period for which this data covers. Furthermore, a description of the variables has been provided including the empirical findings from previous research studies and also the measuring instruments of the variables. Data analysis methods have been explained as well indicating the software and estimation models used. The study uses STATA software and Python software to analyse the data and employs the logistic model and OLS model to estimate the hypotheses of the study. The assumptions and limitations of the models have also been highlighted, including how the key limitation has been controlled. The hypotheses of the study have been outlined and further broken down to provide meaningful analysis and reliable results. Lastly the limitations of the study have been acknowledged for consideration for future studies.

CHAPTER FOUR - RESEARCH FINDINGS, ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter presents the research findings of the empirical investigation of research problem discussed in this paper. The results were obtained by employing the methodology explained in Chapter 3 above. The section is divided into two sections. The first section presents the descriptive statistics and the section describes how financial literacy variables are spread across the different socio-demographic and economic profiles of individuals and also provide an overview of how financial products are spread across different socio-demographic and economic profiles of individuals.

The second part presents the regression results of the models that were employed to test the hypotheses of the study.

4.2 Descriptive Results of the Analysis

Table 5 below provides a description on the output of the data used for analysis.

Table 5: Descriptive Statistics

Variable	Count	Mean	Standard Deviation	Min	Max
Product Choice	2518	0.65	0.48	0.00	1.00
Financial Knowledge	2518	0.69	0.47	0.00	1.00
Financial Control	2518	0.64	0.48	0.00	1.00
Financial Planning	2518	0.98	0.15	0.00	1.00
Insurance	2495	0.62	0.49	0.00	1.00
Credit	2469	0.44	0.50	0.00	1.00
Investments/savings	2509	0.44	0.50	0.00	1.00
Banking products	2402	0.73	0.45	0.00	1.00

Source: Author's Estimates from Software Results

The table above shows that 50% of the subset is financially literate. This can be seen when looking at the mean, since 1 is being financially literate and zero is being financially illiterate, hence 65% have product choice knowledge, 69% have financial knowledge, 63% are familiar with financial control concepts and 97% are familiar with financial planning concepts. For financial inclusion, insurance and banking products are the most popular, with 50% of the subset having both while less than 50% of the subset possess credit/loans and investment/savings products. The table shows that 61% have some form of insurance, 44% have some form of credit, 44% have some form of investment savings and 72% have some form of banking products. Investment/Savings and credit has the most variability (standard deviation) and credit has the least mean. This indicates that credit/loan products are the most spread.

Table 6: Correlation Matrix

Correlation Matrix

	Product Choice	Financial Knowledge	Financial Control	Financial Planning
Product Choice	1			
Financial Knowledge	0.208273***	1		
Financial Control	0.061437***	0.027036	1	
Financial Planning	0.034995*	0.024660	0.040317**	1

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 6 above shows the correlation among the independent variables. The financial literacy variables are loosely positively correlated. Product choice and financial knowledge are the most correlated, however the level of correlation is still considered weak to require any adjustments.

4.2.1 Financial Literacy and Socio-demographics and Economic Variables

This section provides more descriptive information about financial literacy in relation to individual profiles. It provides a better understanding of how financial literacy is spread among different socio-demographic and economic profiles.

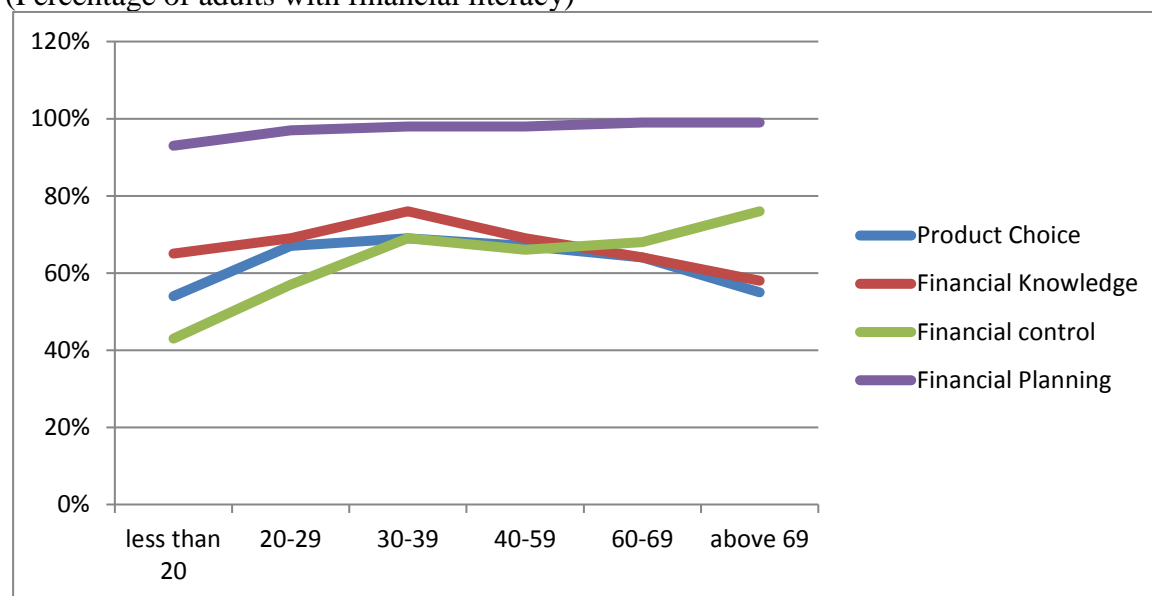
4.2.1.1 Age and Financial Literacy

As previous studies have found understanding of financial literacy follows an inverted U shape with age. Figure 16 below shows that product choice and financial knowledge follows this

pattern, where the percentage of the middle aged is higher than the younger and older aged. Financial planning and Financial control increases with age, the older aged are more concerned with planning for their future and preferring to save among others, probably because they have no sources of income other than their savings from their work life. Overall financial planning is well understood across all ages than the other financial dimensions.

Figure 16: Age vs. Financial Literacy Variables

(Percentage of adults with financial literacy)

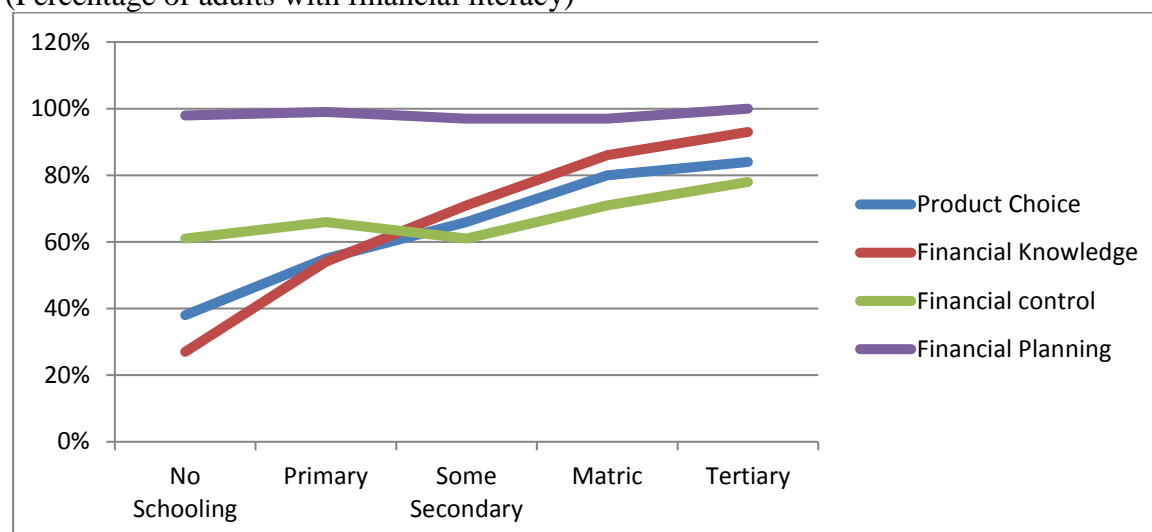


4.2.1.2 Education and Financial Literacy

As the literature suggests, understanding of financial literacy concepts increases with increase in education attainment. The more educated individuals are, the more they are aware of the financial products and services on the market, the more they understand financial concepts such as interests, the more they are familiar with daily financial decision making processes and the better they understand the need to save and plan for the future. There is even a tremendous change in product awareness and financial knowledge as one attains higher education. Similarly financial planning is better understood across all education levels than the other dimensions. The figure below also shows that, of the four financial literacy dimensions, financial control is the least understood concept among those with education higher than secondary level, while financial knowledge is the least understood for those below secondary level.

Figure 17: Education Attainment vs. Financial Literacy Variables

(Percentage of adults with financial literacy)

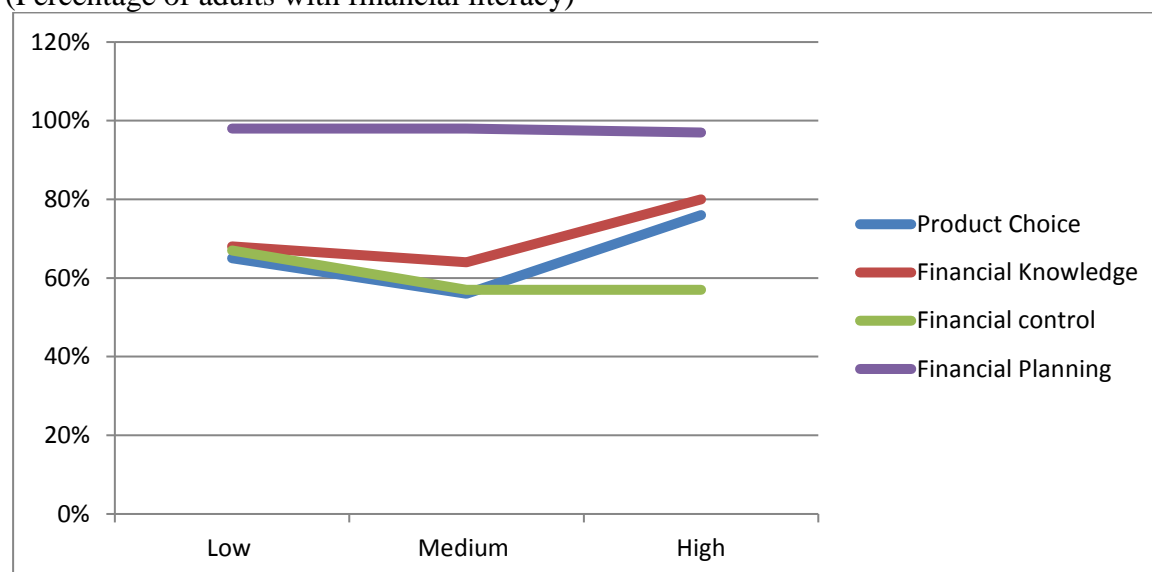


4.2.1.3 Living Standard Measure and Financial Literacy

The literature suggests that financial literacy tends to increase with an increase in level of income but Figure 18 below shows that there is no specific pattern followed. The figure shows that those in high income group are more likely to understand financial knowledge and product choice, but those in the middle income group seem to be less familiar with all financial literacy dimensions, except financial planning, than those in low income group. This probably indicates that level of income does not really affect financial literacy level of an individual. Overall, financial planning is also better understood across all income groups compared to the other domains, while financial control is the least understood in middle-income and high-income groups.

Figure 18: Living Standard Measure vs. Financial Literacy Variables

(Percentage of adults with financial literacy)

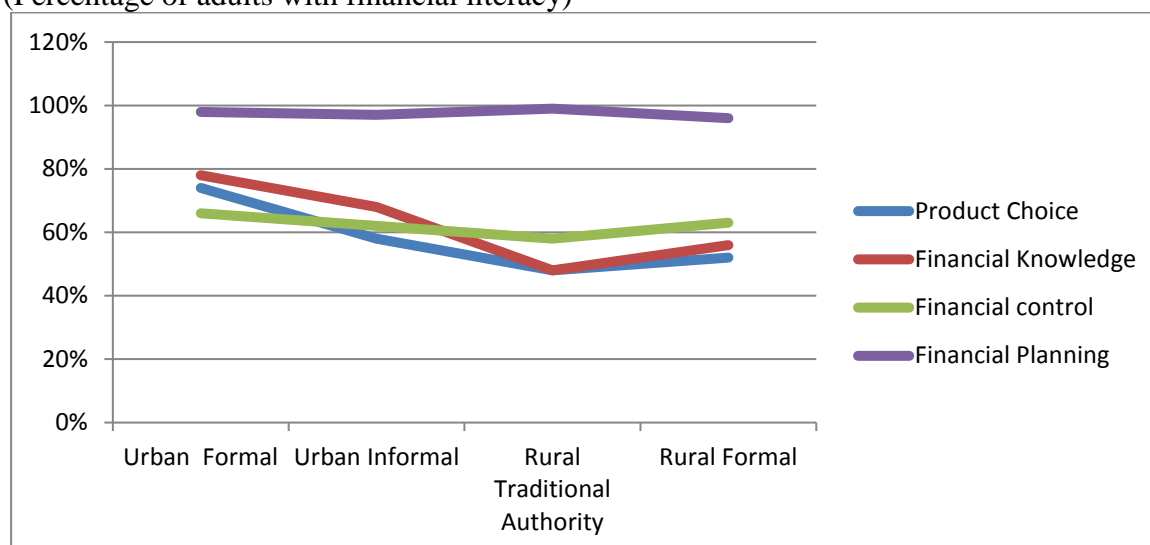


4.2.1.4 Geographical Location and Financial Literacy

Figure 19 below shows that those living in the urban formal area, are more familiar with financial literacy dimensions, but financial control is the least understood in this location. As high-income earners are expected to live in urban formal locations, this confirms the results in section 4.2.13 above, which indicate that financial control is the least understood among the high income earners. Those living in geotype 3, traditional rural authority areas, are the least informed about financial literacy concepts. Financial planning is better understood of all the dimensions of financial literacy across all locations.

Figure 19: Geographical Location vs. Financial Literacy Variables

(Percentage of adults with financial literacy)



In summary financial planning appears to be better understood across all individual profiles while the other financial literacy variables vary across the socio-demographic and economic groupings. The analysis also indicates that the older, the more educated, the richer and those living in urban areas are more familiar with financial literacy concepts.

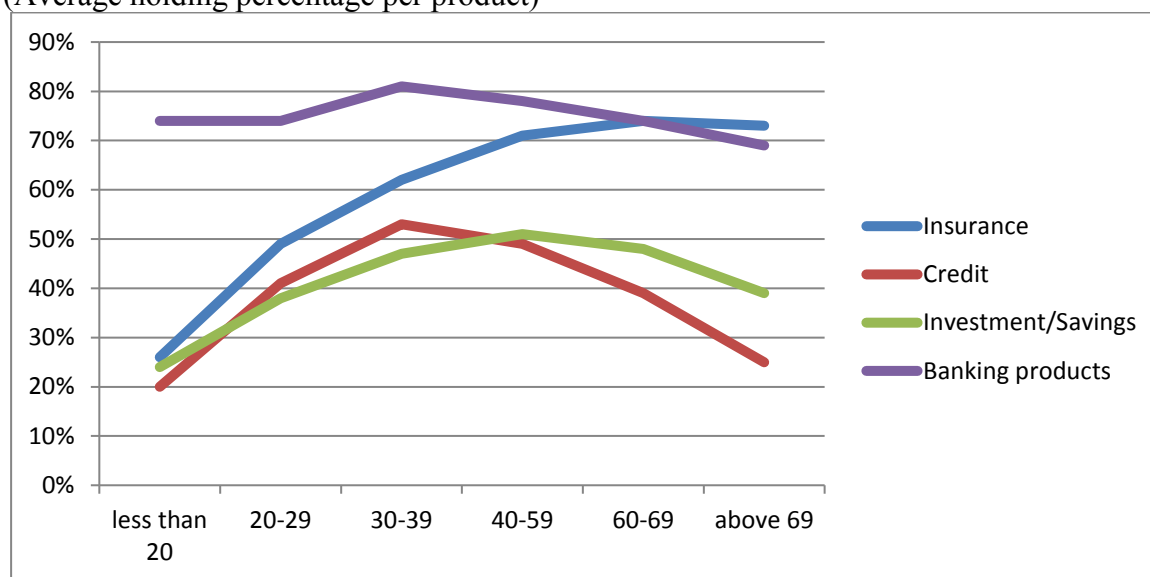
4.2.2 Financial Inclusion and Socio-demographic and Economic Variables

4.2.2.1 Age and Financial Inclusion Variables

Banking and insurance products are well patronised as compared to investments/savings and credit/loan products across all ages. As the individuals get older (above 69), they use more of insurance products than banking products. There is no significant difference in the uptake of investment/savings products and credit/loan products, but adults from 60 years and above prefer to save than use credit compared to other age groups.

Figure 20: Age vs Financial Inclusion Variables

(Average holding percentage per product)

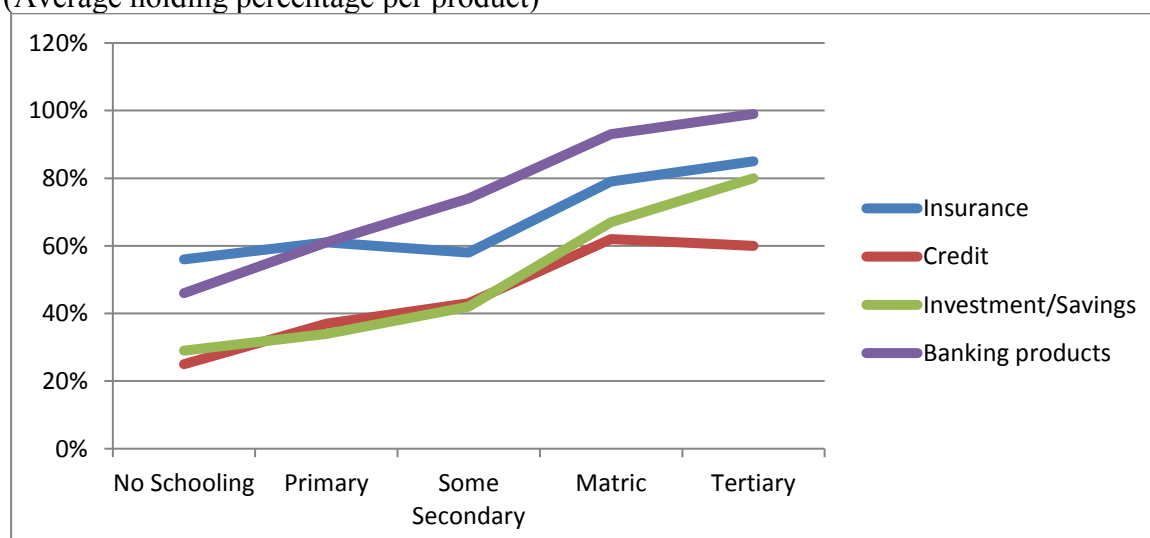


4.2.2.2 Education Attainment and Financial Inclusion Variables

Figure 21 below shows that uptake of financial products among those with the highest education is high for all the four products. Banking products are the mostly held products for those with some secondary education and above while below secondary education the mostly used products are insurance products. Similarly, the difference in uptake of investment/savings products and credit/loan product is not significant but those between primary and some secondary education use more credit than savings as compared to other education groups.

Figure 21: Education Attainment vs. Financial Inclusion Variables

(Average holding percentage per product)

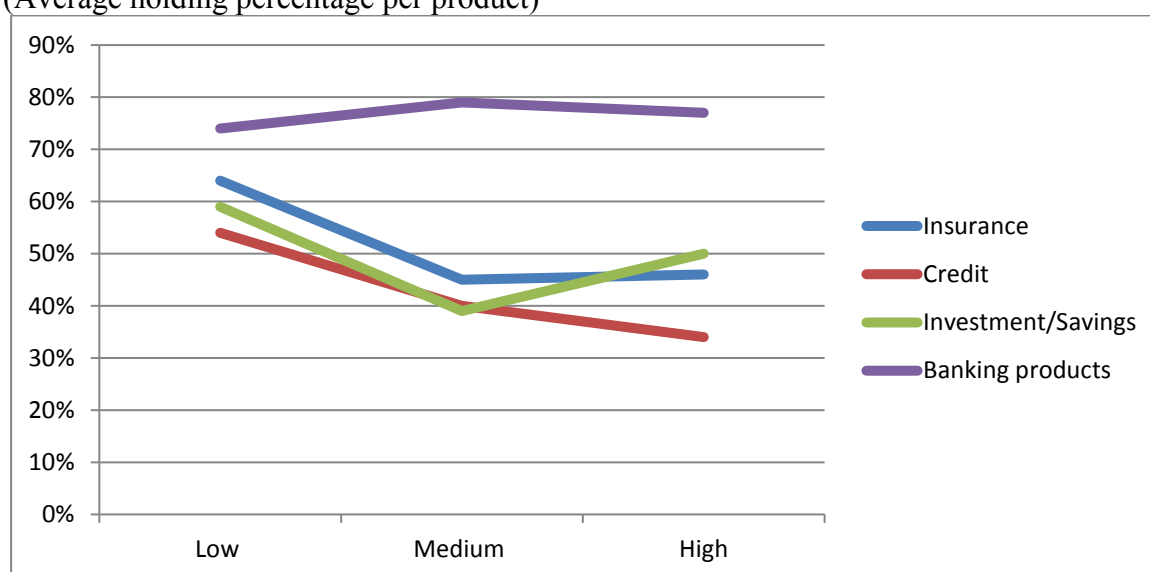


4.2.2.3 Living Standard Measure and Financial Inclusion Variables

The descriptive results in Figure 22 show that those in low-income group are using financial products more than those in other income groups. Banking products are more widely used than the other products across all income groups. Those in the middle-income group are the least users of all the products except for banking products, where they are the highest patronisers. This shows that there is no particular pattern followed when it comes to relationship between economic status of an individual and being financially included.

Figure 22: Living Standard Measure vs. Financial Inclusion Variables

(Average holding percentage per product)

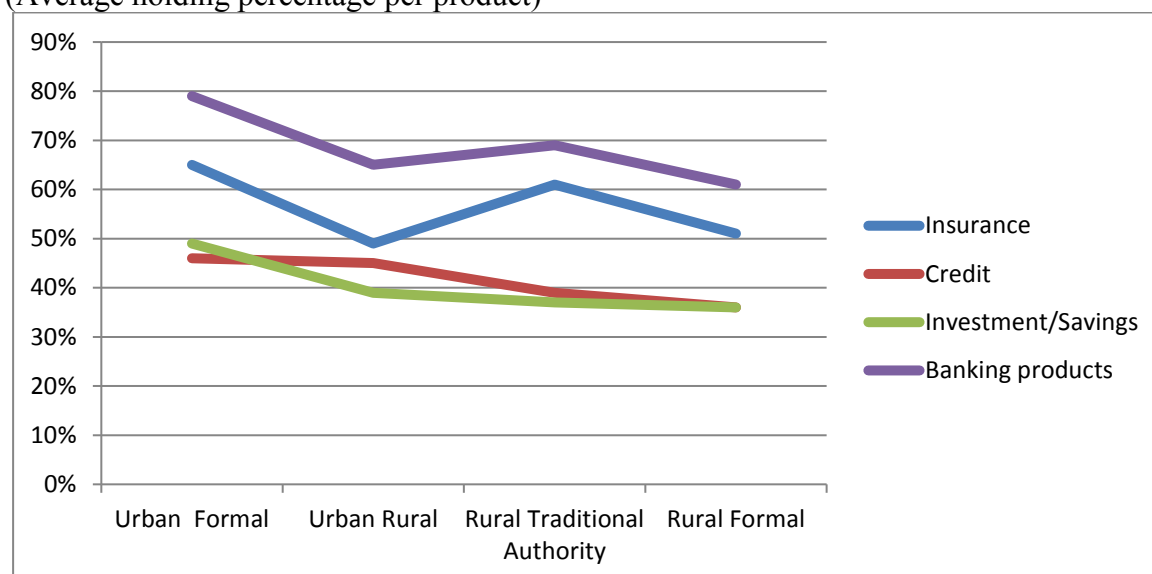


4.2.2.4 Geographical Location and Financial Inclusion Variables

Uptake of financial products is high in urban formal and banking products is the most heard product across all locations. There is not much difference in the uptake of investments/savings products and credit/loan products, but those living in urban informal and the rural areas use more of credit than they save compared to those in urban formal.

Figure 23: Geographical Location vs. Financial Inclusion Variables

(Average holding percentage per product)



Overall the results show that banking products and insurance products are more widely used than investments/savings and credit/loan products. There is no significant difference in the uptake of investments/savings and credit/loan products, but uptake of credit/loan products is slightly higher than investments/savings among those living in rural areas, the younger and the less educated. Interestingly, the results show that those in the low-income group are more financially included than those in the other income groups. This could be due to increased availability of products customised for low-income earners like the Mzansi account, and unsecured loans etc.

4.3 Econometric Results of the Analysis

4.3.1 First Hypothesis Results

The regression explores the relationship between the overall financial literacy score and select socio-demographic and economic variables. The logit model was used.

Table 7: Logistic Regression Results for Socio-demographic and Economic variables

	Financial Literacy Odds Ratio	Financial Inclusion Odds Ratio
Intercept	0.274921	0.025997
Age		
Less than 20	Ref.	Ref.
20-29	1.803600***	2.954787***
30-39	1.934684***	4.279276***
40-59	1.793379***	6.009624***
60-69	2.199636***	4.309236***
Above 69	2.399317***	4.488356***
Education		
No Schooling	Ref.	Ref.
Primary	1.680708**	2.200303***
Some Secondary	1.704787**	5.850346***
Matric	1.406416	17.956788***
Tertiary	1.804892**	25.997658***
Geographical Location		
Rural Traditional Authority	Ref.	Ref.
Rural Formal	0.811330	0.839250
Urban Informal	1.021320	1.049506
Urban Formal	0.685248***	1.904629***
Living Standard Measure		
Low	Ref.	Ref.
Medium	1.197575	0.876860
High	0.958311	1.210611
Observations	2511	2518
Pseudo R2	0.01333	0.1351
Log likelihood	-1664.8	-1504.0

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The results in Table 7 above show the odds ratios, which indicate the odds of the outcome being measured and the reference group. If the odds ratio is > 1 then the event is more likely between the groups while odds ratio < 1 means the event is likely between the groups. The significant effects presented are relative to the reference group. The table displays the following results about the influence of individual characteristics on financial literacy and financial inclusion:

(i) Financial Literacy

- As the age increases, the likelihood of being financially literate also increases. The Base Reference Age is “Less than 20 years’ range” and the coefficients increase as one moves up the Age Bands. Using the odds ratios, we see that moving from “Less than 20 years’ range” to “More than 69” age band, increases the odds of being financially literate by a factor of 2,4. The p value shows that the differences in the bands and the relationships are statistically significant. The lowest financially literate group is 16 to 20 years of age.
- Using “No schooling” as the base reference it is seen that in general (except for the matric education group), as education levels increase, the probability of being financially literate also increases. There is not enough evidence to prove that there is significant difference between “No schooling” and “Matric” level as the p-value is $0.182 > 0.05$. This can also be seen if one looks at the confidence interval which is both negative and positive $(-0.159; 0.841)$. Using the odds ratios, it can be seen that moving from “No schooling’ group” to the next education level except for matric level increases the odds of being financially literate .
- As one moves from the “Traditional” to the “Urban Formal” GeoTypes, the probability of being financially literate decreases. This looks like an anomaly as this is the opposite of what is expected. There is no significant relationship between the Traditional, Rural Formal and Urban Informal GeoTypes and Financial Literacy as the p-values are all > 0.05 .
- There is not enough evidence to suggest that there is any relationship between the LSM level and financial literacy since the p-values are > 0.05

(2) Financial Inclusion

- In general as the age increases, the likelihood of being financially ‘included’(own financial products) also increase. The Base Reference Age is “Less than 20 years’ range” and the coefficients increase as one moves up the Age Bands. It peaks on the age band “40-59” then

starts decreasing. Using the odds ratios, it can be seen that moving from “Less than 20 years’ range” to “More than 69” age band increases the odds of being financially literate by a factor of 4,3. The p values show that the differences in the bands and the relationships are statistically significant.

- Using “No schooling” as the base reference it is observed that in general as education levels increase, the probability of being financially ‘included’ also increases. Using the odds ratios, it can be seen that moving from “No schooling’ group” to “Tertiary” band increases the odds of being financially literate by a factor of 1,18
- As one moves from the “Traditional” to the” Urban Formal” GeoTypes, the probability of being financially ‘included’ increases. There is no significant relationship between the Traditional, Rural Formal and Urban Informal GeoTypes and Financial Literacy as the p-values are all >0.05 .
- There is not enough evidence to suggest that there is any relationship between the LSM and Financial inclusion as well, since the p-values > 0.05

The effect of gender on financial literacy was also separately tested just to confirm the findings of the previous studies,⁵ and the results confirm that gender has no impact on financial literacy in South Africa.

4.3.2 The Main Results

The second hypothesis was tested and analysed as follows:

- (i) The first regression explores the relationship between banking products and select financial literacy variables (financial knowledge and understanding, financial planning, financial control, and product choice and awareness).
- (ii) The second regression explores the relationship between formal investments/savings and the select financial literacy variables (financial knowledge and understanding, financial planning, financial control, and product choice and awareness).
- (iii) The third regression explores the relationship between formal credit/loan products and select financial literacy variables (financial knowledge and understanding, financial planning, financial control, and product choice and awareness).
- (iv) The fourth regression explores the relationship between formal insurance products and select financial literacy variables (financial knowledge and understanding, financial planning,

⁵ The results can be provided upon request, since gender does not form part of the variables in the model.

financial control, and product choice and awareness).

- (v) The fifth and final regression explores the relationship between the overall financial inclusion and overall financial literacy score.

Table 8: OLS Regression Results for Financial Literacy and Financial Inclusion

	Banking Products	Investments/Savings	Credit/Loan	Insurance	Overall Financial Inclusion
Financial Knowledge and Understanding	0.1497*** (0.019)	0.1238*** (0.021)	0.0855*** (0.022)	0.0817*** (0.021)	
Product Choice and Awareness	0.1414 *** (0.018)	0.1735*** (0.021)	0.1135*** (0.021)	0.1569*** (0.020)	
Financial Control	0.0004*** (0.018)	0.0736*** (0.020)	0.0746*** (0.021)	0.1328*** (0.020)	
Financial Planning	-0.0360 (0.057)	-0.1076 (0.065)	0.1001 (0.055)	0.2329 (0.063)	
Overall Financial Literacy					0.0198*** (0.005)
Observations	2518	2518	2469	2495	2511
R-squared	0.071	0.056	0.030	0.062	0.006
Adjusted R-squared	0.059	0.055	0.028	0.061	0.005

Notes: OLS regression coefficients with standard errors in parentheses(*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)

Table 8 above presents the OLS regression results of the second hypothesis as indicated above. The coefficients indicate the strength and direction of the relationship between the variables and the p-values, represented as asterisks, and these indicate the significance of the relationship.

i) Banking Products

There is not enough evidence to prove that there is a relationship between financial planning and banking products as it can be seen that the $p\text{-value} = 0.5 > 0.05$. However, all the other three variables are positively and significantly related to banking products, and financial knowledge has the strongest relationship. This implies that, the more the individual is exposed to financial knowledge, product choice and financial control, the higher the chance of having banking products.

ii) Investments/Savings

The results in Table 8 indicate that there is not enough evidence to suggest that there is a relationship between investment/savings and financial planning. A positive significant relationship exists between investment/savings and the other three variables. The relationship between investment/savings and product choice is the strongest of the three.

iii) Credit/Loan

The results in Table 8 show similar results to those of Table 8, in that credit/loans is positively and significantly related to product choice, financial knowledge and financial control, with product choice having the strongest relationship as well. However, financial planning has no significant relationship with the uptake of credit/loan products.

iv) Insurance

The results in Table 8 indicate that the uptake of insurance products is positively related to all financial literacy domains, with financial planning emerging as the strongest relationship. This implies that, the more one is exposed to financial planning, the more chances of having insurance products. This implies that people associate long-term financial goals with insurance products.

The results in Table 8 also show that overall, financial literacy and financial inclusion are positively and significantly related. This implies that the more financially literate a person is, the higher the probability of using or owning financial products.

4.4 Summary and Conclusions

The analysis and the findings outlined in this chapter have established that financial literacy is positively and significantly related to use/ownership of financial products/services in South Africa. This finding holds true at a broader level when the overall financial literacy score for all the four domains is tested against overall financial inclusion score for all the four indicators. However, when each financial indicator is analysed separately against each of the four financial literacy domains, it emerges that there is no relationship between financial planning and investments/savings, and also no relationship between financial planning and banking products. The analysis also shows that socio-demographic and economic factors play a role in both financial literacy and financial inclusion. The results in this chapter provide a basis for drawing conclusions and formulating recommendations in the next chapters.

CHAPTER FIVE - RESEARCH CONCLUSIONS AND POLICY RECOMMENDATIONS

5.1 Introduction

The aim of the research was to establish the effect of financial literacy on the consumption of financial services/products, using South Africa as a case study. This chapter presents the conclusions made, on the research questions, research objectives and the research hypotheses which this study was designed to address, drawn from the findings of the test carried out in Chapter 4 above. A summary of the conclusions is outlined in the tables below. Further, this section will discuss the implications of the conclusions that have been drawn in order to provide appropriate recommendations for policy-makers as well as recommendations for further research in the field of study in the chapter that follows.

5.2 Conclusions

The tables below provide a conclusion to each research question and research objective and also indicate whether, based on the findings of this study, the tested hypothesis was rejected or not.

Table 9: Research Questions Conclusions

Questions	Conclusion
1. Does financial literacy affect the use/ownership of financial products and services?	The overall impact of financial literacy on use/ownership of financial products is positive and significant.
2. What are the prominent factors that affect financial literacy dimensions in South Africa?	Socio-demographic and economic variables play a significant role in one being financially literate or not. Being older, more educated and living in urban formal areas increases the chance of being financially literate while living standard measure has no impact on being financially literate in South Africa.
What is the relationship between financial literacy and use/ownership of financial products and services?	There is a positive relationship between financial literacy and use/ownership of financial products/services. The more financially literate, the more likelihood of owning/using a financial product/service.

- | | |
|--|--|
| <p>a. What is the relationship between financial control and use/ownership of financial products and services?</p> | <p>a. Financial control is positively and significantly related to all financial inclusion indicators used in this study.</p> |
| <p>b. What is the relationship between financial planning and use/ownership of financial products and services?</p> | <p>b. There is a positive and significant relationship between financial planning and insurance. There is no evidence to suggest a relationship between financial planning and holding investments/savings products or banking products as well as credit/loan products.</p> |
| <p>c. What is the relationship between product choice and use/ownership of financial products and services?</p> | <p>c. Product Choice and Awareness is positively and significantly related to all financial inclusion indicators used in this study.</p> |
| <p>d. What is the relationship between financial knowledge and use/ownership of financial products and services?</p> | <p>d. Financial Knowledge and understanding is also positively and significantly related to all the four financial inclusion indicators.</p> |

Table 10: Research Objective Conclusions

Research Objective	Conclusion
To establish the prominent factors that affect financial literacy dimensions.	All select socio-demographic and economic variables for the study, except living standard measure, indicate that they have influence on one being financially literate or not.
To establish the relationship between financial literacy dimensions and use/ownership of financial products and services.	All financial literacy domains, except for financial planning, are positively and significantly related to use/ownership of financial products. There is no evidence to suggest a relationship between financial planning and investments/savings neither was a relationship found between financial planning and banking products nor credit/loan products.

Table 11: Hypothesis Testing Results Conclusions

Hypothesis	Conclusion
1. Socio-demographic and economic factors such as age, income (living standard measure), education, and geographical location have a significant effect on financial literacy dimensions.	There is no evidence to suggest a relationship between living standard measure and financial literacy and also some geographical locations and financial literacy, but age, education and urban formal location have a significant relationship with financial literacy. Since some proxies of individual profiles have a significant relationship then the alternative hypothesis holds true, therefore, the null hypothesis is rejected.
2. Financial literacy is positively related to use/ownership of financial products and services in South Africa.	<p>All financial literacy domains have a positive significant relationship with use/ownership of various financial products except for:</p> <p>Financial planning and banking products where no relationship is found;</p> <p>Financial planning and investments where no relationship is suggested; and</p> <p>Financial planning and credit/loans where no relationship was found.</p> <p>In addition, overall financial literacy has a positive and significant relationship with financial inclusion thus the alternative hypothesis holds true, and the null hypothesis is rejected.</p>

5.3 Discussion and Synthesis of the Results with Empirical Literature and Theory

Considering the mixed results in the topic under study from previous studies, the implications of these results are very important, as they provide further evidence of the effect of financial literacy on financial inclusion and also concerning the influence of individual profiles on both financial literacy and financial inclusion.

Firstly, the analysis has shown the influence of individual attributes on both financial literacy and financial inclusion. Table 7 above shows the results of the impact of the select socio-demographic and economic variables on financial literacy and financial inclusion. Overall the results show that individual characteristics play a role in financial literacy as well as financial inclusion as the literature in the topic of study suggests. In line with the studies of Fanta et al. (2016) and Nanziri et al. (2016), the results show that financial literacy increases with age while financial inclusion follows an inverted U shape as age increases. The same results as suggested in the literature are observed with education: the more one is educated, the more one is likely to be financially literate and the same with financial inclusion. However, according to Rousseau et al. (2016), the more educated individuals are the more familiar with financial planning and less familiar with financial control. Since the analysis of this study was based on the overall score of financial literacy, it is therefore necessary to do further tests in future to assess the impact of individual characteristics on each financial literacy domain separately. There is not enough evidence to suggest that there is a relationship between living standard measure and financial literacy nor financial inclusion. Most of the studies suggest that both financial literacy and financial inclusion increase with an increase in income and, thus this requires further research. Another interesting result was found in location of residence, where the results show that, when moving from the rural area to the urban area the chance of being financially literate decreases, which is a deviation from the expected results. . This in the author's view could be as a result of increased financial education initiatives targeted for the low-income groups and those living in the rural areas. It could also be due to people's willingness to learn since they are less exposed to financial concepts. On the contrary, the chance of being financially included increase if one lives in an urban area. In addition, a separate test just to confirm the findings of previous studies was done on gender and the results confirm the findings of Atkinson et al. (2012) and Rousseau et al. (2016), that gender has no impact on being financially literate, and similar results were found on financial product uptake in South Africa.

The main objective of the analysis was to test the impact of financial literacy on use/ownership of financial products/services. Table 8 provides the regression results on various relationships between financial literacy domains and financial inclusion indicators. The regression analysis represents a comprehensive analysis of the influence of financial literacy domains on financial inclusion in South Africa. Overall, the results indicate that increasing financial literacy concepts

of an individual increases the chances of an individual owning a financial product. When each financial inclusion indicator is analysed individually, the results show that financial products have different strengths of relationship with individual financial literacy domains.

The results in Table 8 show that all financial literacy variables, except for financial planning, have a positive and significant relationship with all the four select financial inclusion indicators. This suggests that, the more individuals are knowledgeable about financial concepts; are aware of products choices; and are involved in daily decision-making processes, the more likely they are to participate in the financial market. This held true for product choice, financial knowledge and financial control. However, planning for the future and setting long-term goals (financial planning) has no significant influence on the uptake of banking products and investment/savings products and credit/loan products.. This could mean that consumers do not use, or do not find, the banking products and investment/savings necessary for long-term goals and thus resort to insurance products. This is evidenced by the result on the same Table 8. These show a positive and significant relationship between financial planning and insurance products and also a negative relationship with banking products and investment/savings products. The results of this analysis provide the policy makers with a clear understanding of areas of concentration in order to enhance the uptake of financial products. For example, each financial product has a strongest form of relationship with a particular financial literacy domain as shown in Table 8 above as follows: (i) Banking products have a strongest relationship with financial knowledge, (ii) Investments/savings have the strongest relationship with products choice, (iii) Credit/loans have the strongest relationship with products choice and (iv) Insurance has the strongest relationship with financial planning

This then means that increased and properly designed initiatives on financial concepts would increase the uptake of banking products, while enhanced product choice and awareness would increase the uptake of investments/savings and credit/loans. However, to ensure meaningful use of these products, it is necessary to enhance consumers' skills in all financial literacy domains.

These results provide insights to the service providers (financial institutions), regulators, policy-makers, researchers as well as development institutions aimed at enhancing financial literacy and financial inclusion in South Africa and beyond. Although South Africa has seen a tremendous increase in financial inclusion, as indicated by the National Treasury Department,

the country still continues to have a low savings culture and highly indebted households. The descriptive and econometric analysis done in this study reveals areas that can be improved to correct the current situation. The analysis shows that almost 50% of the respondents do not use investments/savings products, and for those that use these products, mostly they use informal channels such as Stokvels and saving clubs. Very few use pension funds as a means to save. Stock market products and unit trusts are the least known and used investment/saving products. The analysis also indicates that banking products and insurance products are most commonly used across all individual profiles. The data shows that the best known as well as most commonly used banking products are savings and ATM accounts. But these savings accounts are only used to receive, make payments and for day-to-day monthly transactions not for short-term or long-term savings. Low transaction costs and convenience could be the reason why these accounts are more popular. Similarly, the most commonly used insurance products, which have gained popularity in the past few years, are burial and funeral covers. The types of products used by most consumers reveal why there are low savings among households. These types of accounts and insurance policies allow consumers to withdraw money easily whenever they want and/or when an emergency occurs.

The second factor is the issue of high indebtedness. The data shows that almost 50% of the respondents do not use any credit facilities, but the majority of those that have access to credit use the informal means such as loan sharks. The majority of users of formal credit products, mostly use store cards and lay byes as well as micro-lenders. This is of huge concern because it only confirms what the literature has revealed that the majority of credit consumers use credit for consumption purposes other than long-term developmental reasons. The other challenge with these loan providers is that they lend consumers at a level beyond their capacity to pay and the interest rates are very high, causing the consumers to be highly indebted for long periods and also failing to save.

The consumption style of the South African financial product consumer shows that most consumers are more concerned and focused on smoothing their current consumption and also about emergencies such as death, illness or loss of income and so they resort to borrowing for consumption and saving their money in vessels where they can easily make withdraws. It appears most consumers do not know, or voluntarily choose not to use, other alternative saving mechanisms such as market shares, unit trusts, etc. There could be a number of reasons to explain this behaviour including: (i) level of awareness of the alternative saving mechanisms

like stock market products; (ii) costs; (iii) complexity of the product; (iv) convenience; and (v) proximity, etc.

The analysis also reveals some gaps in the market. Ideally, one would expect financial planning to be strongly related to investment/savings products. However, information from the South African respondents shows financial planning is strongly linked to insurance products. One would also expect that, if people are well conversant with financial planning, as displayed in the descriptive analysis, then they should not be highly indebted because they are careful about planning for their future. However, the results show that financial control is the least known according to the analysis on individual profiles and also has the weakest relationship with most of the financial products which could explain the high indebtedness among households. There could be several reasons for this including: (i) lack of product awareness and understanding of investment/saving products; (ii) the products provided not the market for investment/savings are not the supposedly ideal product for long-term and/or emergency saving for the South African consumer; and (iii) the term financial planning is related to planning for emergencies hence requires some financial education to clear the misconception.

The implications of this study are important because they confirm the importance of financial literacy on the use /ownership of financial products/services and they also highlight which financial literacy domain is appropriate for each financial product. Moreover, this shows where more focus and resources, based on individual profiles, should be placed to yield optimal results. Thus, to all the key players in the financial market the key points to pick from the results of this study are:

There is evidence of a misunderstanding/misrepresentation of some financial concepts such as financial planning where most people only link it to insurance policies that cater for emergencies and also a poor understanding of financial control concepts. These are the two most important terms, if well understood and implemented among the South African consumers, could help to deal with issues of low savings and high indebtedness. Educating the consumers on other alternative means for long-term saving such as stock market products would also help develop the stock market in the country. In addition, the use of micro lenders and informal structures leads to irresponsible borrowing leading to high indebtedness. Therefore regulating these structures and also educating the consumers on the risks of : (i) borrowing for short-term consumption; and (ii) borrowing from informal lenders, would reduce the problem

of high indebtedness. Another point to consider is to develop affordable loan products that cater for developmental projects.

Secondly, the data from which the analysis was done shows that the uptake of financial products does not correspond to the level of awareness to the consumer. It appears most respondents are well aware of most of the products, with exception of a few, but still prefer to use the products on the informal market especially for savings and loan products. Use of the informal market comes with many challenges as already explained in the problem statement and also takes away a considerable percentage of consumers who would have been included on the formal market. Therefore, bringing the informal groups into the formal market would increase participation in the financial sector as well as provide meaningful services that lead to improving the welfare of the South African consumer.

Lastly, there is evidence of the influence of socio-demographic and economic factors on both financial literacy and financial inclusion. However, there is no evidence that living standard has an influence on either financial literacy or financial inclusion. This is contrary to the existing premise. A deviation was also noted relating to geographical location and financial literacy where the chance of being financially literate decreases in the urban areas. In the author's view this may be as a results of increased financial education initiatives targeted at the low- income groups and those in rural areas. Thus, care should be taken when designing these financial education programmes to avoid neglecting certain groups of people, and eventually reversing the statistics, a balance across all individual profiles should be achieved.

This study provides an opportunity to understand the influence of different financial literacy domains on each of the select financial products regarded as financial inclusion indicators, which has rarely been done in previous researches in this field of study. The study also identifies groups of people who are at risk of being excluded from the formal financial market owing to their low levels of financial literacy. In addition, the study adds to the body of knowledge in the topic of study, an analysis of a direct link between financial literacy and financial inclusion in an emerging market, using widely accepted indicators for both financial inclusion and financial literacy, using a more diverse and nationally representative sample.

. In summary the analysis and the results of this study have shown the issues set out below.

- The commonly held premise on the significance of financial literacy in financial inclusion was agreed on the basis that the overall relationship between financial literacy and financial inclusion was significant and positive. The relationship between the individual select financial literacy dimensions and select financial inclusion indicators was also significant, except for financial planning, which was only significantly related to insurance and not the other three proxies of financial inclusion indicators.
- The impact of the select socio-demographic and economic factors on financial literacy and financial inclusion was agreed on the basis that most of the factors were significantly related to both financial literacy and financial inclusion except for living standard measure, which showed no significant relationship to both.

5.4 Policy Recommendations

As noted by the IMF, South Africa operates in a challenging economic environment. However, the financial sector has seen remarkable progress since the end of Apartheid. The government, together with other financial institutions, has carried out wide ranging initiatives to improve financial services, especially to increase the accessibility of finance. This has resulted in South Africa being one of the countries in the Sub-Saharan region with the highest account penetration. Despite all the efforts, South Africa still reports high unemployment rates, stagnant real disposal incomes, highly indebted households, and high interest rates among others. The country also still faces a considerable percentage of people who are unbanked, who lack skills to use the financial products and/or services effectively and who also prefer to use informal products and services. This is evidenced by a low savings culture, high indebtedness that is not related to income generating activities and an increase in informal products such as funeral insurance policies.

Based on the results obtained and the literature reviewed, the government and financial institutions should work together to improve access to finance in the ways suggested below.

- Design investment/savings products that can cater for long-term goals, especially for those who cannot afford sophisticated products such as bonds etc. and also provide awareness of such products whether new or already available.
- Enhance the collection of more comprehensive country data on financial inclusion for robust analysis, since more focus is currently placed on financial literacy.

- Design a policy framework that promotes and protects banks to provide opportunities to small enterprises/households to access finances beyond the current level. This framework should incorporate robust regulation to avoid crises such as the fall of the African Bank. The Financial Systems Stability Assessment (FSSA) report by the IMF indicates that the South African financial market has room for more competition, as long as there is strong regulation and supervision to avoid market saturation and financial instability (International Monetary Fund [IMF], 2014). This framework must include regulation that allows the use of non-financial collateral that can also be used by small business owners and can also allow seasonal payment based on cash inflows for farmers to reduce credit risk to the banks. This would attract informal products consumers to the formal sector.
- Adopt an education curriculum that promotes financial literacy, especially awareness of the savings culture from the early stages and also financial planning skills to reduce levels of indebtedness. The curriculum should also enhance digital literacy since the world is becoming more and more globalised and digitalised. Investigate why the use of mobile phones in South Africa is not as popular as in countries like Kenya, where use of mobile phones has made a remarkable contribution to the financial industry and the economy as a whole.
- Product Choice and Awareness has a significant impact on product uptake, thus more focus is needed on awareness and designing education programmes that will ensure that the level of awareness results in the corresponding use of financial products and services, especially for those already out of the school curriculum and not in school for some reason. Awareness campaigns should focus not only on informing the consumers of the products and services being offered on the market, but also their benefits, costs, alternatives that are available and the safety of the channels used by the formal financial service providers. There should be more campaigns directed at individuals, regardless of location, and more specifically the younger people aged between 16 to 29.
- Improve the accessibility of financial information to consumers to increase awareness so that they can make informed choices and effective use of the products and services being provided in the market. This may involve surveys to understand why consumers prefer informal services. It is essential to identify the gaps and to develop products that meet consumers' needs.

- Reach out to the informal financial markets just as Kenya, Tanzania and Uganda have done. In addition, this may also provide the informal market with ways of obtaining best practice and technical assistance to reduce the risks prevailing in the informal market.
- Provide awareness to the consumers on the benefits of using the formal sector over the informal sector by highlighting the risks and the disadvantages of using the informal sector.

CHAPTER SIX - RECOMMENDATIONS FOR FUTURE RESEARCH

The recommendations for future research studies include:

- research into the role of financial literacy on financial inclusion in other developing countries within the Sub-Saharan region at sub-national level for individual country policy-makers with more recent data;
- research into the role of financial literacy on financial inclusion in other developing countries in other regions to increase the body of knowledge concerning developing countries;
- research into the effects of other determinants, including country level determinants such as regulation on financial inclusion;
- research that measures further indicators of financial inclusion other than savings, borrowing, account ownership and insurance;
- further research on gender to understand why gender plays no role on financial literacy and financial inclusion in South Africa so as to extrapolate the cause to other countries to attain gender balance in financial inclusion; and
- research into the relationship between financial inclusion and economic growth and development in developing countries.
- The literature and data reviewed into this study shows that the use of mobile phone accounts is not as popular in South Africa as other countries in the region. A research into the impact of innovation and technology on financial inclusion would be necessary and also a research into how innovation and technology can effectively be used to bring the unbanked population into the market.
- This study has revealed the increasing use of informal products by both those who are financially included and excluded. Recommendations in this area include:
 - research into what attracts individuals to use informal products/services;
 - research into effective ways of bringing the informal groups into the formal market; and
 - research into the impact of bringing the informal sector into the formal sector at country level.

REFERENCES

- Allan, A., Massu, M., & Svarer, C. (2013). Banking on change: Breaking the barriers to financial inclusion. Barclays, Plan UK, CARE International.
- Alliance for Financial Inclusion,(2017). *Maya Declaration*. Alliance for Financial Inclusion Maya Declaration 2017 Factsheet. Retrieved from www.AFI-GLOBAL-ORG
- Agarwalla, S. K., Barua, S. K., Jacob, J., & Varma, J. R. (2013). *Financial literacy among working young in urban India (No. 2013.10.12)*. Indian Institute of Management Working paper. Research & Publications. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2338723
- Allen, F., Carletti, E., Cull, R., Qian, J. Q., Senbet, L., & Valenzuela, P. (2014). *The African financial development and financial inclusion gaps*. (WPS7019) Policy Research Working paper, The World Bank, Washington, DC. <http://doi.org/10.1093/jae/eju015>
- Allen, F., Demirgüç-Kunt, A., Klapper, L., & Martinez Peria, M. S. (2016). The foundations of financial inclusion: Understanding ownership and use of formal accounts. *Journal of Financial Intermediation*, 27, 1–30. <http://doi.org/10.1016/j.jfi.2015.12.003>
- Alliance for Financial inclusion, Financial Inclusion Data Working Group, (2013). *Measuring financial inclusion core set of financial inclusion indicators* (4). Retrieved from <https://www.afi-global.org/sites/default/files/.../fidwg-core-set-measuring-fi.pdf>
- Ardic, O. P., Chen, G., & Latortue, A. (2012). *Financial Access 2011: An Overview of the Supply-Side Data Landscape* (5). CGAP Access to Finance Forum Working paper. Washington, DC; World Bank Group. Retrieved from <http://documents.worldbank.org/curated/en/307701468331824729/Main-report>
- Ardic, O. P., Heimann, M., & Mylenko, N. (2011). *Access to financial services and the financial inclusion agenda around the world: A cross-country analysis with a new data set*. (WPS5537) Policy Research Working Paper, The World Bank, Washington, DC. Retrieved from [http://www.cgap.org/gm/document-1.9.49435/Access to Financial Services and the Financial Inclusion Agenda Around the World.pdf](http://www.cgap.org/gm/document-1.9.49435/Access_to_Financial_Services_and_the_Financial_Inclusion_Agenda_Around_the_World.pdf)
- Arun, T., & Kamath, R. (2015). Financial inclusion: Policies and practices. *IIMB Management Review*, 27(4), 267–287. <http://doi.org/10.1016/j.iimb.2015.09.004>

- Atkinson, A., & Messy, F. (2012). *Measuring financial literacy: Results of the OECD/International Network on Financial Education (INFE) pilot study* (No.15). OECD Working papers on Finance, Insurance and Private Pensions, OECD publishing <http://dx.doi.org/10.1787/5k9csfs90fr4-en>
- Atkinson, A., & Messy, F.-A. (2011). Assessing financial literacy in 12 countries: an OECD/INFE international pilot exercise. *Journal of Pension Economics and Finance*, 10(4), 657–665. <http://doi.org/10.1017/S1474747211000539>
- Beck, T., A. Demirgüç-Kunt, & Martinez Peria, MS. (2008). *Banking services for everyone? Barriers to bank access and ase around the world*. World Bank Economic Review .[http:// doi:10.1093/wber/lhn020](http://doi:10.1093/wber/lhn020)
- Bonin, J., Hasan, I., & Wachtel, P. (2013). *Banking in transition countries* (No. 2013-008). Wesleyan Economic Working papers. Retrieved from repec.wesleyan.edu/pdf/jbonin/2013008_bonin.pdf
- Brey, Z., Chisadza, S., Ludin, A., & Stern, M. (2016). *Consumer protection in SADC*. FinMark Trust Research report.
- Burney, S. M. P. (2008). Inductive & deductive research approach. Retrieved from [www.drburney.net/INDUCTIVE%20&%20DEDUCTIVE%20RESEARCH%20APPROACH%](http://www.drburney.net/INDUCTIVE%20&%20DEDUCTIVE%20RESEARCH%20APPROACH%20)
- Cámara, N., & Tuesta, D. (2012). Measuring Financial Inclusion : A Multidimensional Index (No. 14/26). *BBVA Research Working paper*.
- Chakrabarty, KC. (2012). Financial Inclusion: Issues in Measurement and Analysis. *Keynote Address at the BIS-BNM Workshop on Financial Inclusion Indicators*, Kuala Lumpur, 5 November.
- Chakrabarty, KC. (2013). Financial education. *Address at the India-OECD-World Bank Regional Conference on “Financial education”*, New Delhi, 4th March.
- Chibba, M. (2009). Financial inclusion, poverty reduction and the Millennium Development Goals. *European Journal of Development Research*, 21, 213–230. <http://doi.org/10.1057/ejdr.2008.17>
- Chitra, N., & Selvam, M. (2013). *Determinants of Financial Inclusion : An empirical study on the inter-state variations in India*. Retrieved from

- Cohen, M., & Nelson, C. (2011). *Financial Literacy: A Step for Clients towards Financial Inclusion*. Global Microcredit Summit, Commissioned Workshop paper. Retrieved from www.microcreditsummit.org/resource/24/financial-literacy-a-step-for.html.
- Cull, R., Tilman, E., & Nina, H. (2014). *Financial inclusion and development: Recent impact evidence*. Focus Note No.92, Washington DC: CGAP.
- Dancey, K. (2013). *Building financial capability-embedded financial education* (Presentation). FinMark Trust.
- de Bassa Scheresberg, C. (2013). Financial literacy and financial behavior among young adults: Evidence and implications. *Numeracy*: Vol. 6 : Iss. 2 , Article 5. <http://dx.doi.org/10.5038/1936-4660.6.2.5>
- Demirgüç-Kunt, A. (2014). Presidential address: Financial inclusion. *Atlantic Economic Journal*, 42(4), 349–356. <http://doi.org/10.1007/s11293-014-9429-z>
- Demirgüç-Kunt, A., & Klapper, L. (2012). *Measuring Financial Inclusion: The Global Findex Database*. World Bank Policy Research Working paper. Washington, DC, World Bank. <http://doi.org/10.1596/978-0-8213-9509-7>
- Demirgüç-Kunt, A., Klapper, L., & Singer, D. (2013). *Financial inclusion and legal discrimination against women: Evidence from developing countries* (No. 6416). Policy Research Working paper, Washington, DC, The World Bank. <http://doi.org/10.1596/1813-9450-6416>
- Demirgüç-Kunt , A., Klapper, L., Singer, D., & Oudheusden, P. Van. (2015). Measuring Financial Inclusion around the World (No.7255). The Global Findex Database 2014. Policy Research Working paper, The World Bank.
- Diniz, E., Birochi, R., & Pozzebon, M. (2012). Triggers and barriers to financial inclusion: The use of ICT-based branchless banking in an Amazon county. *Electronic Commerce Research and Applications*, 11(5), 484–494. <http://doi.org/10.1016/j.elerap.2011.07.006>
- Economy Watch. (n.d.). Financial products. Available at www.economywatch.com/investment/financial-products.html

- Evans, O., & Adeoye, B. (2016). Determinants of financial inclusion in Africa: A dynamic panel data approach. *University of Mauritius Research Journal*, <https://mpa.ub.uni-muenchen.de/81326/> 88
- Fanta, A. B., Mustonziwa, K., & Naidoo, D. (2016). *Financial literacy and financial inclusion in the SADC region: Evidence using FinScope Surveys* (No. 02/2016). Policy Research paper. FinMark Trust.
- Cohen, M., & Nelson, C. (2011). *Financial Literacy: A Step for Clients towards Financial Inclusion*. Global Microcredit Summit, Commissioned Workshop paper. Retrieved from www.microcreditsummit.org/resource/24/financial-literacy-a-step-for.html.
- Cull, R., Tilman, E., & Nina, H. (2014). *Financial inclusion and development: Recent impact evidence*. Focus Note No.92, Washington DC: CGAP.
- Dancey, K. (2013). *Building financial capability-embedded financial education* (Presentation). FinMark Trust.
- de Bassa Scheresberg, C. (2013). Financial literacy and financial behavior among young adults: Evidence and implications. *Numeracy*: Vol. 6 : Iss. 2 , Article 5. <http://dx.doi.org/10.5038/1936-4660.6.2.5>
- Demirgüç-Kunt, A. (2014). Presidential address: Financial inclusion. *Atlantic Economic Journal*, 42(4), 349–356. <http://doi.org/10.1007/s11293-014-9429-z>
- Demirgüç-Kunt, A., & Klapper, L. (2012). *Measuring Financial Inclusion: The Global Findex Database*. World Bank Policy Research Working paper. Washington, DC, World Bank. <http://doi.org/10.1596/978-0-8213-9509-7>
- Demirgüç-Kunt, A., Klapper, L., & Singer, D. (2013). *Financial inclusion and legal discrimination against women: Evidence from developing countries* (No. 6416). Policy Research Working paper, Washington, DC, The World Bank. <http://doi.org/10.1596/1813-9450-6416>
- Demirgüç-Kunt, A., Klapper, L., Singer, D., & Oudheusden, P. Van. (2015). Measuring Financial Inclusion around the World (No.7255). The Global Findex Database 2014. Policy Research Working paper, The World Bank.
- Diniz, E., Birochi, R., & Pozzebon, M. (2012). Triggers and barriers to financial inclusion: The use of ICT-based branchless banking in an Amazon county. *Electronic Commerce Research and Applications*, 11(5), 484–494. <http://doi.org/10.1016/j.elerap.2011.07.006>

- Economy Watch. (n.d.). Financial products. Available at www.economywatch.com/investment/financial-products.html
- Evans, O., & Adeoye, B. (2016). Determinants of financial inclusion in Africa: A dynamic panel data approach. *University of Mauritius Research Journal*, <https://mpa.ub.uni-muenchen.de/81326/> 88
- Fanta, A. B., Mustonziwa, K., & Naidoo, D. (2016). *Financial literacy and financial inclusion in the SADC region: Evidence using FinScope Surveys* (No. 02/2016). Policy Research paper. FinMark Trust.
- Fatoki, O., & Oni, O. (2014). Financial Literacy Studies in South Africa: Current Literature and Research Opportunities. *Mediterranean Journal of Social Sciences*, 5(20), 409–414. <http://doi.org/10.5901/mjss.2014.v5n20p409>
- FinScope. (2014). FinScope South Africa 2014 Consumer Survey. *FinScope South Africa 2014*, 1–9. Retrieved from <http://www.banking.org.za/docs/default-source/financial-inclusion/finscope/finscope-sa-2014.pdf>
- FinScope. (2015). FinScope South Africa 2015 Survey Report. Retrieved from www.finmark.org.za/wp-content/uploads/2015/03/Broch_FinScopeSA2015_ConsumerSurvey_FNL.pdf
- FinScope. (2016a). Results from FinScope South Africa 2016 Survey on Financial inclusion – Finmark Trust.
- FinScope. (2016b). Results from FinScope South Africa 2016 Survey on Financial Inclusion – FinmarkTrust. Retrieved from <https://www.finmark.org.za/results-from-finscope-south-africa-2016-survey-on-financial-inclusion/>
- Fungáčová, Z., & Weill, L (2014, April). *Understanding Financial Inclusion in China* (10/2014). BOFIT Discussion paper. Retrieved from <https://ssrn.com/abstract=2428151>
- Gardeva, A., & Rhyne, E. (2011). *Opportunities and obstacles to financial inclusion*. Survey Report. Retrieved from Center for Financial Inclusion at ACCION International website:http://centerforfinancialinclusionblog.files.wordpress.com/2011/07/opportunities-and-obstacles-to-financial-inclusion_110708_final.pdf
- Gerardi, K., Goette, L., & Meier, S. (2013). *Financial Literacy and Subprime Mortgage Delinquency: Evidence from a Survey Matched to Administrative Data* (No. 2010-10). Federal Reserve Bank of Atlanta Working paper.

- Ghatak, A. (2013). Demand side factors affecting Financial Inclusion. *Research Journal of Social Science & Management*.
- Global Partnership for Financial Inclusion. (n.d.). *G20 Financial inclusion indicators*. Available at <https://www.gpfi.org/news/g20-financial-inclusion-indicators>
- Global Partnership for Financial Inclusion. (2012). *G20 , Seoul Summit*. Available at www.gpfi.org/sales/.../GPFI%20work%20plan-combined-200311%20Aug%2026.pdf
- Goldberg, J., & Niazi, Z. (n.d.). *The role of financial services in reducing hunger*. Available at www.cgap.org/bog/role-financial-services-reducing-hunger
- Hall, K. (2008). The Importance of Financial Literacy, (February), 15–21. <http://doi.org/10.1002/abc.20004>
- Hannig, A., & Jansen, S. (2010). *Financial Inclusion and Financial Stability: Current Policy Issues* (No. 259). ADBI Working paper. Tokyo: Asian Development Bank Institute. Retrieved from <http://www.adbi.org/working-paper/2010/12/21/4272.financial.inclusion.stability.policy.issues/>
- Huston, S. (2010). Measuring Financial Literacy. *The Journal of Consumer Affairs*, onlinelibrary.wiley.com/doi/10.1111/j.1745-6606.2010.01170.x/abstract
- India Infoline News Service. (2014). *Financial inclusion and financial literacy should go hand in hand : RBI*. Retrieved from https://www.indiainfoline.com/article/market-equity/financial-inclusion-and-financial-literacy-should-go-hand-in-hand-rbi-113103108075_1.html
- International Monetary Fund. (2014). Financial system stability assessment. IMF country report No. 14/340, South Africa. Retrieved from <https://www.imf.org/external/pubs/ft/scr/2014/cr14340.pdf>
- Investopedia. (n.d.). What is an emerging market economy? Available at <https://www.investopedia.com/terms/e/emergingmarketeconomy.asp>
- Jha, M., Amerasinghe, S., & Calverley, J. (2014). *Financial inclusion : Reaching the unbanked*. Standard Chartered Bank Research Report.

- Kairiza, T., Kiprono, P., & Magadzire, V. (2016). Gender differences in financial inclusion amongst entrepreneurs in Zimbabwe. *Small Business Economics*, 48(1), 1– 48(1), 1–14. <http://doi.org/10.1007/s11187-016-9773-2>
- Kasekende, L. (2014). What role does financial inclusion play in the policy agenda for inclusive growth in Sub-Saharan Africa? *Development*, 57(3–4), 481–487. <http://doi.org/10.1057/dev.2015.32>
- Kessler, K., Ikdal, A., Naidoo, E., Portafaix, A., Hendrickson, J., Boje, A., & Rabec, D. (2017). World Economic Forum on Africa, Boston Consulting Group. Retrieved from <https://www.weforum.org/agenda/2017/04/financial-inclusion-south-africa/>
- Khan, HR. (2011). *Financial inclusion and financial stability: Are they two sides of the same coin?* Address by Shri H. R. Khan, Deputy Governor of the Reserve Bank of India, at BANCON , Indian Bankers Association and Indian Overseas Bank, Chennai, India, 4 November. Retrieved from <https://www.bis.org/review/r111229f.pdf>
- Kiarie, F. (2015). *Making financial services work for South Africans*. World Policy Institute. *World Policy blog*. Ret <https://www.bis.org/review/r111229f.pdf> retrieved from <http://www.worldpolicy.org/blog/2015/06/16/making-financial-services-work-south-africans>
- Klapper, L., Lusardi, A., & Oudhensden, P. Van. (2015). Financial literacy around the world: an overview. *Journal of Pension Economics and Finance*, 10(4), 497–508. <http://doi.org/10.1017/S1474747211000448>
- Kostov, P., Arun, T., & Annim, S. (2015). Access to financial services: The case of the "Mnzasi" account in South Africa. *Review of Development Finance*. Available at www.sciencedirect.com
- Levine, R. (1997). Financial development and economic growth: Views and agenda. *Journal of Economic Literature* 35(2): 688-726
- Lusardi, A. (2008). *Financial Literacy: An essential tool for informed consumer choice?* (14084). National Bureau of Economic Research Working paper series. Retrieved from <http://www.nber.org/papers/w14084>14. <http://doi.org/10.1007/s11187-016-9773-2>
- Lusardi, A., Michaud, P., & Mitchell, O. S. (2013). Optimal financial knowledge and wealth inequality (18669). National Bureau of Economic Research Working paper

series. Retrieved from <http://www.nber.org/papers/w18669>

Lusardi, A. & Mitchell, O. S., 2014. The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 2014, 52(1), 5–44
<http://dx.doi.org/10.1257/jel.52.1.5>

Makina, D., Fanta, A. B., Mutsonziwa, K., & Khumalo, J. (2015). *Financial access and SME size in South Africa*. Research paper, FinMark Trust.

Mishi, S., Vacu, N., & Chipote, P. (2012). Impact of financial literacy in optimising financial inclusion in rural South Africa. *Case study of the Eastern Cape*. African Development Finance workshop, USB, RSA, 7-8 August, 2012. Retrieved from <https://econrsa.org/system/files/workshops/papers/2012/syden-financial-literacy.pdf>

Mitchell, O. S., & Lusardi, A. (2015). Financial Literacy and Economic Outcomes: Evidence and Policy Implications, (January), 13. Retrieved from <http://www.pensionresearchcouncil.org/publications/document.php?file=1255>

Morgan, P. J., & Pontines, V. (2014). *Financial stability and financial inclusion*. (No. 488) ADBI Working Paper Series, Asian Development Bank Institute.
<http://doi.org/10.2139/ssrn.2464018>

Nanziri, E. L., & Leibbrandt, M. (2016). *Measuring and profiling financial literacy in South Africa (171)*. Southern Africa Labour and Development Research Unit Working paper. Cape Town: SALDRU, University of Cape Town.

Park, C.-Y., & Mercado, R. V. (2015). *Financial inclusion, poverty, and income inequality in developing Asia* (No. 426). ADB Economics Working Paper Series, Asian Development Bank, Philippines.

Pearce, D. (2011). *Financial Inclusion in the Middle East and North Africa: Analysis and Roadmap Recommendations* (5610). Policy Research Working paper. Financial and Private Section Unit, MENA, World Bank.

Polhman, J., & Leitner, D. (2003). A Comparison of ordinary least squares and logistic regression. *The Ohio Journal of Science*, 118-125
<http://hdl.handle.net/1811/23983> 103(5).

Potrich, A. C., Vieira, K. M., & Kirch, G. (2015). Determinants of Financial Literacy : Analysis of the Influence of Socioeconomic and Demographic Variables.

- Prasad, E. (2010). *Financial sector regulation and reforms in emerging markets: An overview* (No. 16428). NBER Working Paper. Cambridge, MA: National Bureau of Economic Research. Retrieved from <http://www.nber.org/papers/w16428.pdf> 92
- Refera, K. M., Dhaliwal, K. N., & Kaur, J. (2016). Financial literacy for developing countries in Africa: A review of concept, significance and research opportunities. *Journal of African Studies and Development*, 8(1), 1–12. <http://doi.org/10.5897/JASD2015.0331>
- United Nations Secretary General's Special Advocate. (2016). Annual Report to the Secretary General. Retrieved from https://www.unsgsa.org/files/6214/7708/0597/UNSGSA_report_2016_copy.pdf
- Requejo, I. (2011). *Defining and characterising emerging capital markets*. Retrieved from www.irequejo.es/strathclyde/.../ECM%20Lecture%201%20Presentation.pdf
- Roberts, B., Struwig, J., and Gordon, S (2014). *Financial literacy in South Africa: Results from the 2013 South African Social Attitudes Survey round*. Report prepared by the Human Sciences Research Council on behalf of the Financial Services Board. Pretoria: Financial Services Board.
- Roberts, B., Struwig, J., Gordon, S., Viljoen, J., & Wentzel, M. (2012). *Financial literacy in South Africa : Results of a national baseline survey*. Report prepared by the Human Sciences Research Council on behalf of the Financial Services Board. Pretoria: Financial Services Board.
- Rootman, C., & Antoni, X. (2014). Investigating Financial Literacy To Improve Financial Behaviour Among Black Consumers. *Journal of Economic and Financial Sciences*, July 2015 8(2), pp. 474-494
- Rooyen, C.V., Stewart, J., & Wet, D. (2012). The impact of microfinance in Sub-Saharan Africa: A systematic review of the evidence. *World Development Journal* 40(11): 2249– 2262, <https://doi.org/10.1016/j.worlddev.2012.03.012>
- Rousseau, G. G., & Venter, D. J. L. (2016). Financial insight and behaviour of household consumers in Port Elizabeth. *Southern African Business Review*, 20, 236–258.
- Sharma, R., Didwania, M., & Kumar, P. (2011). Need of financial inclusion for poverty alleviation and GDP growth. *International Journal of Multidisciplinary Research*,

I(6), 83–91. Retrieved from
[http://zenithresearch.org.in/images/stories/pdf/2011/Oct/ZIJMR/6_vol-1_issue-6_RAJESH SHARMA MANISHA paper\(1\).pdf](http://zenithresearch.org.in/images/stories/pdf/2011/Oct/ZIJMR/6_vol-1_issue-6_RAJESH SHARMA MANISHA paper(1).pdf)

South Africa. The Department of National Treasury. (2017). Budget Review. Pretoria, South Africa

Subbarao, D. (2013). *Financial literacy and financial inclusion are integral to each other* (Inaugural remarks). India-OECD-World Bank regional conference on " Financial Education" New Delhi, 4 March 2013.

Sukumaran, K. (2015). Financial Access: Inclusion and Literacy. *Annual Research Journal of SCMS,Pune*.

Thaler, R. (2013). *Financial literacy, beyond the classroom*. Retrieved from
<http://www.nytimes.com/2013/10/06/business/financial-literacy-beyond-the-classroom.html>

The Banking Association South Africa. (n.d.). *Context and need for a financial inclusion*. Retrieved from <http://www.banking.org.za/what-we-do/overview/towards-a-financial-inclusion-strategy>

The World Bank. (2014). *Global Financial Development Report. Financial Inclusion*. Washington, DC: World Bank. doi:10.1596/978-0-8213-9985-9. License: Creative Commons Attribution CC BY 3.0

Triki, T., Faye, I., Demirgüç-Kunt, A., Klapper, L., Stein, P., Bilandzic, N., & Torres, A. M. (2013). Financial Inclusion in Africa. Retrieved from
<https://www.microfinancegateway.org/sites/default/files/mfg-en-paper-financial-inclusion-in-africa-2013.pdf>

Turner, J., & Klein, B., & Stein, N. (2015). Financial illiteracy meets conflicted advice: The case of thrift savings plan rollovers. *The Journal of Retirement Spring*, 3 (4) 47-65; DOI: <https://doi.org/10.3905/jor.2016.3.4.047>

Wachira, M., & Kihui, E. (2012). Impact of financial literacy on access to financial services in Kenya. *International Journal of Business and Social Science*. Retrieved from http://www.ijbssnet.com/journals/Vol_3_No_19_October_2012/5.pdf

World Bank Group. (2015). Universal Financial Access BY 2020. Finance and Markets

Global Practice, World Bank.

- Wentzel, J. P., Diatha, K. S., & Yadavalli, V. S. S. (2016). An investigation into factors impacting financial exclusion at the bottom of the pyramid in South Africa. *Development Southern Africa*, 33(2), 203–214. <http://doi.org/10.1080/0376835X.2015.1120648> 94
- West, J. (2012). *Financial literacy learning in emerging markets : Agent-based modeling* (2012-05). Discussion paper. Retrieved from <https://pdfs.semanticscholar.org/8150/7f048d2fd8b0a8e03f87b00ccda886738918.pdf>
- Williams, C. (2007). Research Methods. *Journal of Business and Economic Research*. Grand Canyon University. Retrieved from <https://www.cluteinstitute.com/ojs/index.php/JBER/article/download/2532/2578>
- Wikipedia. (n.d.). Financial services. Available at https://en.wikipedia.org/wiki/financial_services
- Zins, A., & Weill, L. (2016). The determinants of financial inclusion in Africa. *Review of Development Finance*, 6(1), 46–57. <http://doi.org/10.1016/j.rdf.2016.05.001>

DATA REFERENCE

Human Sciences Research Council. *South African Social Attitudes Survey (SASAS) 2012: Questionnaire 2 - All provinces*. [Data set]. SASAS 2012 Q2. Version 1.0. Pretoria South Africa: Human Sciences Research Council [producer] 2012, Human Sciences Research Council [distributor] 2014,
<http://dx.doi.org/doi:10.14749/1417607512>

APPENDICES

Appendix A

List of Financial Education Initiative in South Africa

Note: The List is not exhaustive

Institution

FSB

National Credit Regulator

KZN Financial Literacy Association

BANKSETA & their partners

SA Insurance Association

Old Mutual

Stanlib

ABSA

Standard Chartered Bank

First National Bank

Nedbank

Sanlam

Hollard

Momentum

Initiative

Financial Education Awareness campaigns and annual financial literacy surveys to provide information

Promotes consumer protection

Financial education in high schools

Consumer education on financial management skills & risks and benefits with credit

Promotes saving culture

Financial Well Being Programme (Fin360)

Movie on financial education

Bubomi Training Programmes

Workshops for low income earners

Money Smart Concept Courses

MyFinancialLife Programme

Money fo sho Programme

Training Courses

Making Money Matter Interactive Board Game

Appendix B

GPI Financial Inclusion Indicators

Note: Indicators proposed in 2016 are shaded in green, revised indicators are shaded in Blue

	Category	Indicator	Source	Frequency
USAGE INDICATORS: ADULTS				
1A ^D	Adults with an account	Account (% age 15+) <i>Percentage of adults who report having an account (by themselves or together with someone else) with a formal financial institution or a mobile money provider</i>	WB Global Findex	Triennial
1B	Number of accounts	Deposit accounts per 1,000 adults	IMF Financial Access Surveys	Annual
1C		E-money accounts per 1,000 adults	WB Global Payments Systems Survey	Annual
1D		Mobile money transactions per 100,000 adults <i>Number of mobile money transactions per 100,000 adults</i>	IMF Financial Access Surveys	Annual
2A ^D	Adults with credit at regulated institutions	Borrowed from a financial institution in the past year (% age 15+): <i>Percentage of adults with at least one loan outstanding from a bank or other formal financial institution</i>	WB Global Findex	Triennial
2B		Outstanding loans per 1,000 adults	IMF Financial Access Surveys	Annual
3	Adults with insurance	Insurance policy holders per 1,000 adults <i>Disaggregated by life and non-life insurance</i>	IMF Financial Access Surveys	Annual
4	Cashless transactions	Retail cashless transactions per 1,000 adults <i>Includes: number of cheques, credit transfers, direct debits, payment card transactions (debit cards, credit cards), and payments by e-money instruments (card-based e-money instruments, mobile money products, and online money products)</i>	WB Global Payments Systems Survey	Annual
5 ^D	Adults using digital payments	Made or received digital payments (% age 15+) <i>Percentage of adults using a transaction account (with a bank or other formal financial institution or mobile money provider) to make or receive a digital financial payment</i> <i>Includes: Use the internet to pay bills or make purchases online; Use a phone to pay bills, make purchases, or send or receive money from an account (with a bank or other formal financial institution or mobile money provider); Use a debit or credit card to make a direct payment from an account; Send or receive remittances to/from an account; Receive wages, government transfer payments, or agricultural payments to an account; Send utility or school fees from an account</i>	WB Global Findex	Triennial
5A ^{*D}	Payment using a mobile phone (from an account)	<Sub-indicator> Made payment using mobile phone (% age 15+) <i>Percentage of adults using a mobile phone to pay bills, make purchases, or send or receive money from an account (with a bank or other formal financial institution or mobile money provider)</i>	WB Global Findex	Triennial
5B ^{*D}	Payments using the internet	<Sub-indicator> Made payment using the internet (% age 15+) <i>Percentage of adults using the internet to pay bills, make purchases, or send money online</i>	WB Global Findex	Triennial
5C ^{*D}	Payment using a bank card	<Sub-indicator> Made payment using a debit card (% age 15+) <i>Percentage of adults using a debit card to directly make a payment from an account (with a bank or other formal financial institution)</i>	WB Global Findex	Triennial

	Category	Indicator	Source	Frequency
5D ^{*,D}	Payment using account	<Sub-indicator> Received wages or government transfers into an account (% age 15+) <i>Percentage of adults who receive wages or government transfers into an account (with a bank or other formal financial institution or mobile money provider)</i>	WB Global Index	Triennial
6 ^D	High frequency of account use	High frequency of account use (% age 15+) <i>Percentage of adults with high frequency use of an account. "High frequency" is defined as having taken money out of a personal account(s) at a bank or other formal financial institution 3 or more times in a typical month, including cash withdrawals, electronic payments or purchases, checks, or any other type of payment debit, either by account owner or third parties.</i>	WB Global Index	Triennial
7 ^D	Saving propensity	Saved at a financial institution (% age 15+) <i>Percentage of adults that saved at a bank or other formal financial institution in the past year</i>	WB Global Index	Triennial
USAGE INDICATORS: ENTERPRISES				
8A ^G	Formally banked enterprises	SMEs with an account at a formal financial institution (%) <i>Percentage of Small or Medium Sized Enterprises (SMEs) with an account at a bank or other formal financial institution</i>	WB Enterprise Surveys	3-5 years **
8B		SME deposit accounts (as a % of non-financial corporation borrowers) <i>Number of SME deposit accounts (as a % of non-financial corporation borrowers)</i>	IMF Financial Access Surveys	Annual
9A ^G	Enterprises with outstanding loan or line of credit at regulated institutions	SMEs with an outstanding loan or line of credit (%) <i>Percentage of SME with outstanding loan or line of credit from a bank or other formal financial institution</i>	WB Enterprise Surveys	3-5 years **
9B		SME loan accounts (as a % of non-financial corporation borrowers) <i>Number of SME loan accounts (as a % of non-financial corporation borrowers)</i>	IMF Financial Access Surveys	Annual
10 ^G	Digital payments to or from enterprises	SMEs that send or receive digital payments from an account (%) <i>Percentage of SMEs that send or receive digital payments from an account</i>	WB Enterprise Surveys (Aspirational)	3-5 years **
ACCESS INDICATORS: PHYSICAL POINTS OF SERVICE				
11A	Points of service	Branches per 100,000 adults <i>Number of branches per 100,000 adults</i>	IMF Financial Access Surveys	Annual
11B		ATMs per 100,000 adults <i>Number of ATMs per 100,000 adults</i>	IMF Financial Access Surveys	Annual
11C		Agents of payment service providers per 100,000 adults <i>Includes: agents of banks and other deposit-taking institutions, as well as specialized entities such as money transfer operators and e-money issuers</i>	WB Global Payments Systems Survey	Annual
11D		Mobile agent outlets per 100,000 adults <i>Number of mobile agent outlets per 100,000 adults</i>	IMF Financial Access Surveys	Annual
11E		POS terminals per 100,000 adults <i>Number of POS terminals per 100,000 adults</i>	WB Global Payments Systems Survey	Annual
11F ^D		Access to a mobile phone or internet at home (% age 15+) <i>Percentage of adults with access to a mobile phone or device or internet access in the home</i>	Gallup World Poll	Triennial
12	Debit card ownership	Debit cards per 1,000 adults <i>Number of debit cards per 1,000 adults</i>	WB Global Payments Systems Survey	Annual

	Category	Indicator	Source	Frequency
13 ^G	Enterprise points of service	SMEs that have a POS terminal (%) <i>Percentage of SME's that have a point of sale (POS) terminal</i>	WB Enterprise Surveys (Aspirational)	3-5 years**
14	Interoperability of Points of Service	Interoperability of ATM networks and interoperability of POS terminals (0-1) <i>Takes the value 1 if most or all ATM networks (/POS terminals) are interconnected and 0 if they are not interconnected</i>	WB Global Payments Systems Survey	Annual
QUALITY INDICATORS: FINANCIAL LITERACY AND CAPABILITY				
15	Financial Knowledge	Financial knowledge score <i>Arithmetic score which sums up correct responses to questions about basic financial concepts, such as: (A) Inflation, (B) Interest rate, (C) Compound interest, (D) Money illusion, (E) Risk diversification, (F) Main purpose of insurance.</i>	WB Financial Capability Surveys and OECD National Financial Literacy and Inclusion Surveys	Periodic
16 ^D	Financial Behaviour	Use of savings for emergency funding <i>Percentage of adults that respond "savings" in response to the question: If you had an emergency that required [\$10, or 1/25 of GDP] urgently, where would you get the money? a) borrow from friends/relative; b) work more; c) sell assets; d) savings; e) loan from savings club; f) loan from bank; g) would not be able to find it</i>	WB Global Findex	Triennial
QUALITY INDICATORS: MARKET CONDUCT AND CONSUMER PROTECTION				
17	Disclosure Requirements	Disclosure index combining existence of a variety of disclosure requirements: <i>(1) Plain language requirement (e.g. understandable, prohibition of hidden clauses) (2) Local language requirement, (3) Prescribed standardized disclosure format, (4) Recourse rights and processes (5) total rate to be paid for a credit (basic costs plus commission rates, fees, insurance, taxes)</i>	WB Global Consumer Protection Survey	Annual
18	Dispute Resolution	Index reflecting the existence of formal internal and external dispute resolution mechanisms: <i>(1) Internal dispute resolution mechanism indicator: law or regulation setting standards for complaints resolution and handling by financial institutions (including timeliness, accessibility, requirements to implement complaints handling procedures) (2) External dispute resolution mechanism indicator: System in place that allows a customer to seek affordable and efficient recourse with a third party (supervisory agency, a financial ombudsman or equivalent institution)</i>	WB Global Consumer Protection Survey	Annual
QUALITY INDICATORS: BARRIERS TO USE				
19 ^G	Credit Barriers	Percentage of SMEs required to provide collateral on their last bank loan (reflects the tightness of credit conditions)	WB Enterprise Surveys and OECD SME Scoreboard	3-5 years**
		Getting credit: the strength of credit reporting systems and the effectiveness of collateral and bankruptcy laws in facilitating lending. Measured as "Distance to frontier" <i>The "distance to frontier" score aids in assessing the absolute level of regulatory performance and how it improves over time. This measure shows the distance of each economy to the "frontier," which represents the best performance observed on each of the indicators across all economies in the Doing Business sample since 2005. This allows users both to see the</i>	WBG Doing Business	Annual

Notes:

* Adults may use more than one mode of payment; sub-indicators are not mutually exclusive categories.

** Enterprise Surveys are collected globally on a three- to five-year cycle.

'D' Data is also shown disaggregated by income (poorest 40% of households and richest 60% of households); age (adults under 35 and adults 35 and older); and gender.

'G' Data is also shown for women-owned enterprises.

Appendix C

World Bank Financial Inclusion Indicators

Account (% age 15+)

Financial Institution Account (% age 15+)

Mobile Account (% age 15+)

Access to Financial Institution Account (% age 15+)

Has debit card

ATM is the main mode of withdrawal (% with an account)

Use of Account in the Past Year (% age 15+)

Used an account to receive wages

Used an account to receive government transfers

Used a financial institution account to pay utility bills

Other Digital Payments in the Past Year (% age 15+)

Used a debit card to make payments

Used a credit card to make payments

Used the Internet to pay bills or make purchases

Domestic Remittances in the Past Year (% age 15+)

Sent remittances

Sent remittances via a financial institution (% senders)

Sent remittances via a mobile phone (% senders)

Sent remittances via a money transfer operator (% senders)

Received remittances

Received remittances via a financial institution (% recipients)

Received remittances via a mobile phone (% recipients)

Received remittances via a money transfer operator (% recipients)

Savings in the Past Year (% age 15+)

Saved at a financial institution

Saved using a savings club or person outside the family

Saved any money

Saved for old age

Saved for a farm or business

Saved for education or school fees

Credit in the Past Year (% age 15+)

Borrowed from a financial institution

Borrowed from family or friends

Borrowed from a private informal lender

Borrowed any money

Borrowed for a farm or business

Borrowed for education or school fees

Outstanding mortgage at a financial institution

Appendix D

List of Formal Financial Products in South Africa

Banking Products: Mzansi Account, Saving Accounts, Current or Cheque Account, Fixed Deposit Bank Account 5.4 133, ATM Card, Debit Card or Cheque Card, Credit Card, Garage Card or Petrol Card, Home Loan from a Big Bank, Savings Book at a Bank, Post Office/Post Bank Savings Account, Cellphone Account (e.g. M-PESA). (HSRC).

Investment or Savings Products: These products include unit Trusts, Education Policy or Plan, Investment or Savings Policy, Shares on the Stock Exchange, Retirement Annuity, Provident Fund, and Pension Fund. (HSRC).

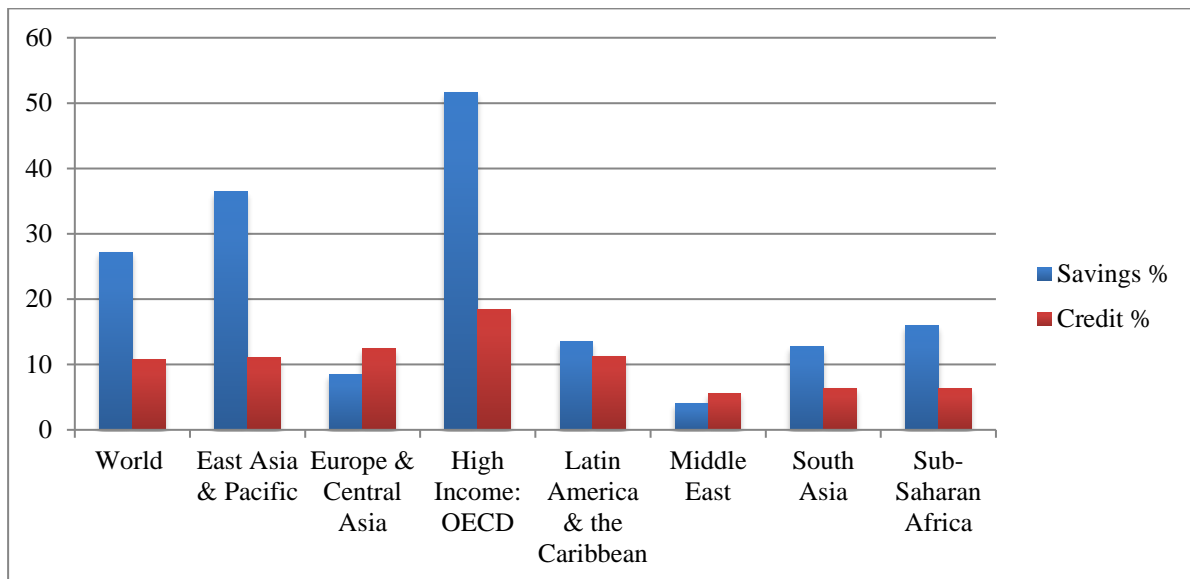
Credit or Loan Products: Loan from a Micro lender (e.g. African Bank, Credit Indemnity, Capitec Bank), Vehicle or Car Finance through Bank or Dealer, Overdraft Facility, Store Card (where you buy on account and pay later), Lay-Bye, Hire Purchase (paying in monthly installments for goods such as furniture). (HSRC).

Insurance Products: Vehicle or Car Insurance, Household Contents Insurance, Homeowners Insurance on Building/House Structure, Cellphone Insurance, Life Insurance or Life Cover, Insurance that pays your loan or borrowing when you die, Disability Insurance or cover, Medical Aid Scheme, Hospital Cash Plan, Belong to a burial society, Funeral policy with a bank, Funeral cover through an undertaker, Funeral policy with an insurance company. (HSRC).

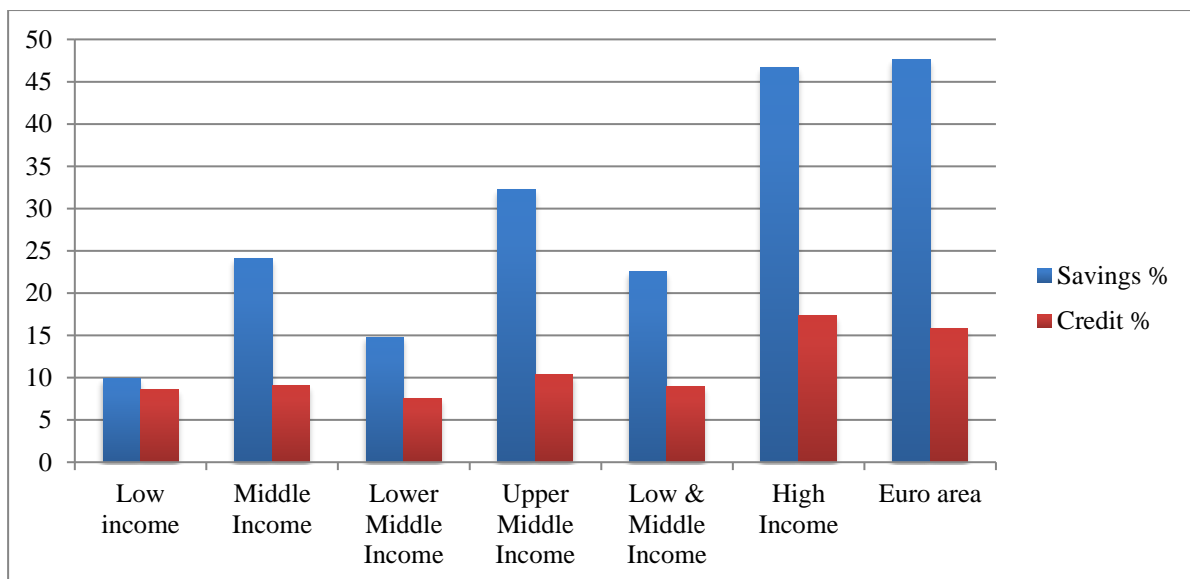
Appendix E

Saving and Credit Behaviours

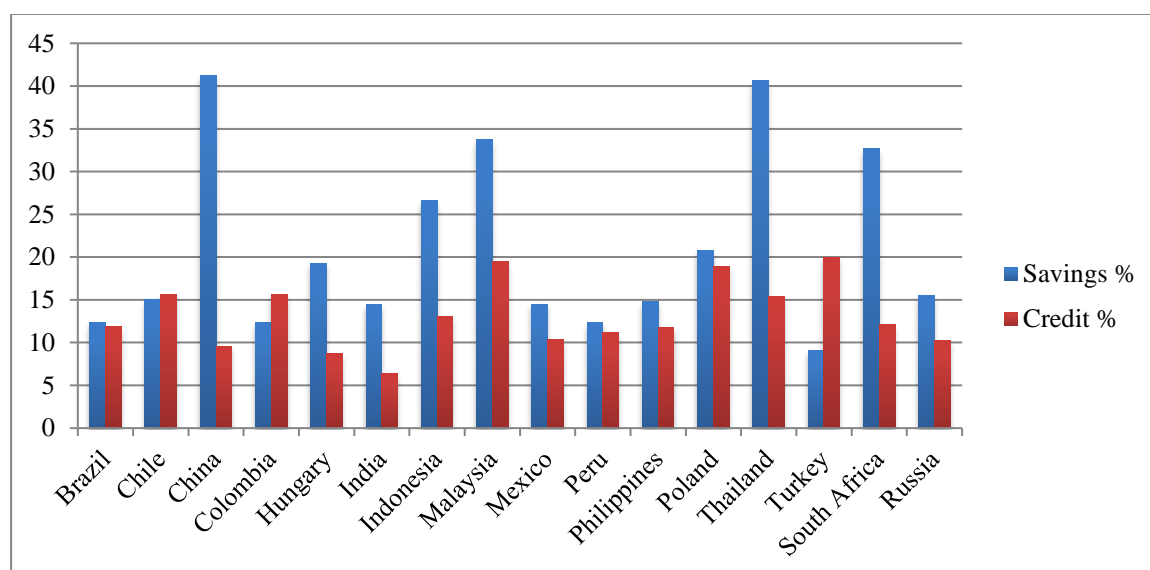
Percentage of Adults with Formal Savings and Credit by Region



Percentage of Adults with Formal Savings and Credit by Income Groups



Percentage of Adults with Formal Savings and Credit in Emerging Economies



Appendix F

List of Emerging Economies

There is no one agreed upon complete list of emerging markets because different institutions have different definitions of an emerging market. However IMF, Morgan & Stanley and S&P have a number of countries that they all agree to be emerging markets and these countries include: Brazil, Chile, China, Colombia, India, Indonesia, Hungary, Malaysia, Mexico, Peru, Philippines, Poland, Thailand, Turkey, South Africa, Russia.

Appendix G

World Bank's Analytical Regions

The country composition of regions as used in this paper is based on the World Bank's analytical regions and may differ from common geographic usage. These regions are classified as follows:

East Asia and Pacific

Cambodia, China, Indonesia, Lao People's Democratic Republic, Malaysia, Mongolia, Myanmar, Philippines, Thailand, Vietnam

Europe and Central Asia

Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Georgia, Hungary, Kazakhstan, Kosovo, Kyrgyz Republic, former Yugoslav Republic of Macedonia, Moldova, Montenegro, Romania, Serbia, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan

High income: OECD

Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Israel, Italy, Japan, Republic of Korea, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States

Latin America and the Caribbean

Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Peru, República Bolivariana de Venezuela

Middle East

Djibouti, Arab Republic of Egypt, Iraq, Jordan, Lebanon, West Bank and Gaza, Republic of Yemen

South Asia

Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka

Sub-Saharan Africa

Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Chad, Comoros, Democratic Republic of Congo, Republic of Congo, Côte d'Ivoire, Ethiopia, Gabon, Ghana, Guinea, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia, Zimbabwe.

Appendix H

Financial Literacy Domains & Questions

Financial Literacy Domain	Indicator	Questions
Financial Control	Personal Involvement in Daily Household Money Management	Who is responsible for day-to-day money management decisions in your household?
	Presence of a household budget	Do you have a household budget?
	Considered Approach to Personal Finances * Careful Spending * Paying Bills Timeously * Monitoring Financial Matters	* Before I buy something I carefully consider whether I can afford it. * I pay my bills on time * I keep a close personal watch on financial affairs
	Making Ends Meet * Making Ends Meet * Main Coping Response	* Sometimes people find that their income does not quite cover their living costs. In the last 12 months, has this happened to you? * What did you do to make ends meet the last time this happened?
	Preference for Spending or Saving	Money is there to be spent?
	Tends to set and strive to achieve long term financial goals	* I set long-term financial goals and work hard to achieve them
	Has emergency funds or rainy day funds	Have you set aside emergency or rainy day funds that would cover your expenses for 3 months, in case of sickness, job loss, economic downturn, or other emergencies?
Financial Planning	Preference for spending money vs long-term saving	I find it more satisfying to spend money than to save it for the long term
	Living for today vs long term provisioning	I tend to live for today and let tomorrow take care of itself
	Saved money in last 12 months	In the past 12 months have you been saving money in any of the following ways?
	Product awareness * Banking Products * Credit and Loan Products * Investment and Savings Products * Insurance Products	* Please can you tell me whether you have heard of any of the following banking products, Investment and savings products, credit and loan products, insurance products?
Product Choice	Product holding * Banking Products * Credit and loan Products * Investment and Savings Products * Insurance Products	* And now can you tell me whether you currently hold any of these types of products?
	Financial product decision-making * Have Clear Idea of Product Need * Informed Product Choice	* I've got a clear idea of the sorts of financial products or services that I need without consulting a financial adviser * I always research my choices thoroughly before making any decisions about financial products or services
	Experience of regret about recent financial product choice * Does not Regret any Key Financial Decisions Made in Last Year * Did not Pay for an Unsuitable Product in Last Five Years	* In the last 12 months, have you made a decision about any of the following that you later regretted? * Within the last five years, have you discovered that you had been paying for a financial product that was clearly unsuitable for your needs?
	Basic mathematical division	Imagine that five friends are given a gift of R1 000. If the friends have to share the money equally how much does each one get?
	Effects of inflation	Now imagine that the friends have to wait for one year to get their share of the R1, 000 and inflation remains the same. In one year's time will they be able to buy.
Financial Knowledge	Interest paid on loans	You lend R25 to a friend one evening and he gives you R25 back the next day. How much interest has he paid on this loan?

	Interest on deposits	Suppose you put R100 into a savings account with a guaranteed interest rate of 2% per year. How much would be in the account at the end of the first year?
	Compound interest	And how much would be in the account at the end of five years?
	Risk of high return investments	If someone offers you the chance to make a lot of money it is likely that there is also a chance that you will lose a lot of money.
	Effects of inflation on cost of living	High inflation means that the cost of living is increasing rapidly?
	Risk diversification	It is less likely that you will lose all of your money if you save it in more than one place

Appendix I

Select Socio-demographic and Economic Variables

Variable	Count	Percentage
LSM		
Low	1759	70%
Medium	415	16%
High	344	14%
Education		
No Schooling	236	9%
Primary	374	15%
Some Secondary	1558	62%
Matric	199	8%
Tertiary	151	6%
Age Group		
LESS THAN 20	189	8%
20-29	548	22%
30-39	515	20%
40-59	823	33%
60-69	280	11%
MORE THAN 69	163	6%
GeoType		
Type1- Urban Formal	1552	62%
Type2- Urban Informal	223	9%
Type3-Traditional Authority	536	21%
Type4- Rural Formal	207	8%